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TENNESSEE NET MIGRATION ESTIMATES: 1970-1980

Donald W. Hastings
Jan C. Jacobsen

About midway through the 1970's, Tennessee's historic pattern of out-migration shifted to one of in-migration. Whereas in the decade 1960-1970 Tennessee lost roughly 45,000 people, most of whom were young adults in their twenties, in the decade 1970-1980 the state gained approximately 390,000 people from in-migration. Many of the in-migrants are in the age groups typified by married couples with children, single parents with children, or singles. The effects of this population growth can be seen in congressional boundaries and representation change, tax-base increases, and the reflection of a more cosmopolitan milieu in cities. Tennessee has become a destination for many people.

Reasons for Migration

Research on internal migration shows that people migrate for many reasons – to find work or advance a career, to be near friends or kin, or to live in a particular climate. Economic reasons, jobs and income, are consistently shown as the strongest motives for migrating (Ritchey, 1969). Thus, it is reasonable to assume that Tennessee's shift to a pattern of in-migration reflects partially a response to increased economic opportunities within the state over the past decade (Kahley, 1982). As people move, they bring with them a wide range of education, skills, and aspirations, and differing levels of income potential and wealth.

The South is attracting both white- and blue-collar workers, people with college and high school educations, and people, for the most part, whose incomes are above the poverty line. The younger working migrant brings "human capital" to invest in the future; the retired migrant brings pension and investment income with which to purchase goods and services (Kahley, 1982). The people Tennessee has attracted affect and are part of the state's future.

Population Trends

Population trends in Tennessee are affected by migration and can be expected to differ from population trends in other regions of the country and the nation in general. For example, the demand for youth-oriented services and the decline in public school enrollments found in other areas of the country may be experienced more gradually in many areas of Tennessee since married couples and single parents with children are moving in. Migration may either aggravate or assuage the effects of possible fertility patterns of the "baby boom" generation now in the midst of their child-bearing years. If the "baby boom" generation has high fertility and produces a "baby echo," in-migration would further increase demands for youth services. Conversely, if their fertility declines, in-migration simply would forestall reductions in the demand levels of youth services.

Similarly, in-migration by people

Donald W. Hastings *is Professor of Sociology at The University of Tennessee, Knoxville. His research focuses on state trends in fertility, mortality, migration and nuptuality. He also is interested in religion and ethnicity as factors influencing population processes.*
Jan C. Jacobsen *is a graduate student in Sociology at The University of Tennessee, Knoxville. His major areas of interest are demography, epidemiology, and social stratification.*

19-30 years of age may ameliorate otherwise reduced college enrollments resulting from declining fertility. Many young adults are extending their time in school and college, and others are returning for refresher courses and advanced accreditation.

The in-migration of young adults also softens shortfalls in the labor force due to the "baby dearth" following the "baby boom" and provides a steady labor pool for business and industry. Young adults are relatively more fluid in the labor market than are older adults. The influx of younger in-migrants has contributed to a better balanced age structure in the population than would have existed had the pattern of out-migration continued.

Older Migrants

Some migrants are older and may be returning to Tennessee or selecting Tennessee as a retirement site. As older migrants move to Tennessee there will be an increased demand for health care services and other programs aimed at serving the older adult and elderly populations of the state. It is conceivable that these two different age groups of migrants may increase demand for programs for both young and old, and may lead to conflicts over the allocation of tax revenues at state and local levels.

There are more non-natives living in Tennessee than at any time in the recent past. The shifts in population within the state create markets for goods and services which did not exist a decade ago. There should be a continued demand for housing from the influx of married couples and single-parent families to the state. The growth of the population will present opportunities for the further expansion and diversification of the present mix of business and industry. If Tennessee is to reap the benefits of the "rise of the Sunbelt," and minimize unfavorable effects, continued and thorough study of the population distribution and movement is necessary. Knowing the age and sex of migrants and where they are settling in the state is essential to planners in public and private sectors of the economy.

This study examines estimated net migration rates between 1970 and 1980 by age and sex for the state and its nine Development Districts (see Figure 4). Data for migrants other than age and sex are not yet available.

These net migration estimates should be evaluated with a consideration of the effects of census enumeration errors in the 1970 and 1980 Censuses. The 1970 undercount for the South was roughly 4 percent; the 1980 undercount was less than in 1970, according to the U.S. Bureau of the Census (telephone conversation with J. Gregory Robinson, 6/22/82.) The relative improvement in coverage from 1970 to 1980 leads to an underestimate of net migration rates for the decade. The life table survival technique generates a schedule of survival rates based on age-specific death rates. If the population in the denominator of the rate is understated and deaths in the numerator do not change, the relative proportion of those dying will be overstated, leading to underestimated survival rates. The schedule of survival rates multiplied against the 1970 Census population yields underestimates of the population surviving to 1980. The difference between the estimated survivors to 1980 and 1980 Census population — assuming no difference in

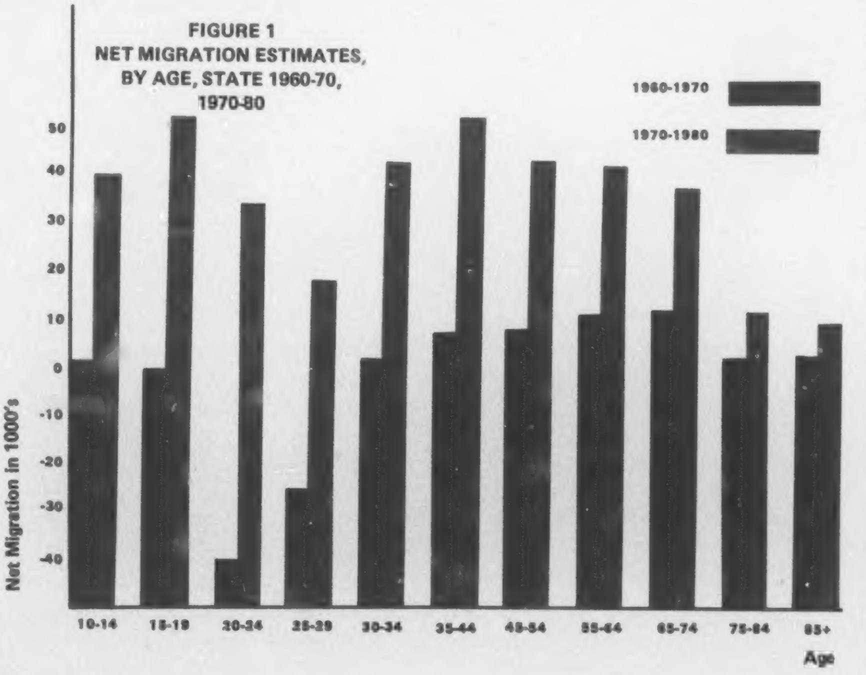


FIGURE 1
NET MIGRATION ESTIMATES, BY AGE, STATE 1960-70, 1970-80

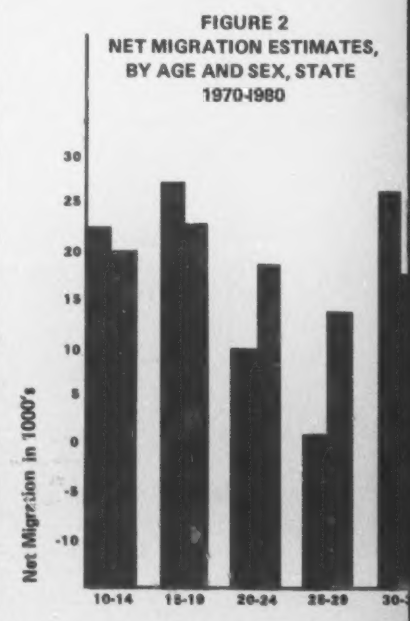


FIGURE 2
NET MIGRATION ESTIMATES, BY AGE AND SEX, STATE 1970-1980

coverage between 1970 and 1980 – overestimates the extent of migration. Improved coverage in 1980 yields an inflated population count for 1980, thereby resulting in an underestimate of net migration for Tennessee for 1970-1980.

Total Net Migration

As shown in Figure 1, net in-migration occurs in each of the age groups covered in this study. Total net migration estimated between 1970 and 1980 is 390,906. The total net migration estimate conforms with other estimates of net migration for Tennessee 1970-1980 (Kahley, 1982). This figure is approximately 8.5 percent of Tennessee's 1980 population and comprises over one-half the change in the state's total population size from 1970 to 1980.

Pattern by Age

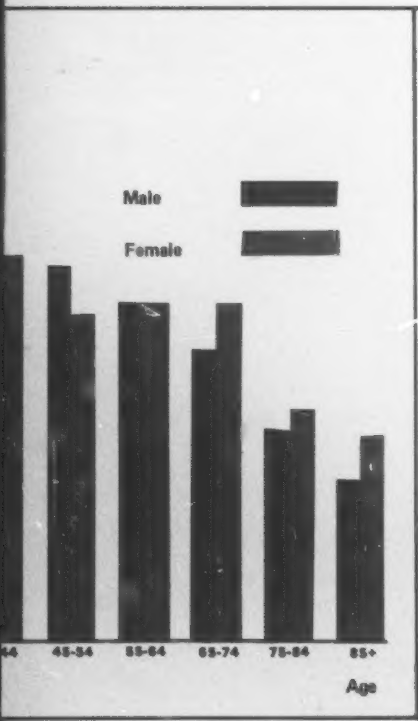
The pattern of net migration by age reflects movement associated with age-linked obligations and responsibilities such as going to school, entering the job market, following a career, and retiring. In the youngest age groups, 10-19 years, in-migration levels are high. The in-migration of youth is indirect evidence for the migration of families to Tennessee, since dependent children normally move with their families or single parents. The ages 20-29, the years of first entry into the job market, show in-migration, but at a substantially lower level than among younger or older ages. Compared with older ages, the levels of in-migration among the 20-29 year-olds suggest a weaker growth in job opportunities for young adults in Tennessee.

The highest levels of in-migration are in the mid-career years, peaking in the 35-44 age group. From age 45 on, the levels of in-migration gradually decline, but remain high until age 75. In these ages beyond age 45, in-migration may include some return or re-migration. In past years many young persons, upon completion of their educations, moved on to greener economic pastures in other states, but now, finding jobs scarce or having opted for early retirement, they are returning to Tennessee. In-migration rates among persons in their 60's and 70's show strong movement of the elderly to Tennessee, perhaps because they are attracted by a generally lower cost of living and a more temperate climate than in the northern states.

Pattern by Sex

State migration patterns by sex are similar to the family- and life-cycle-based migration patterns by age. Figure 2 shows that the major differences between male and female migration occur in the ages from 20-29, the years associated with first marriage, family formation, and first job. Female in-migration exceeds male in-migration over these years and is probably due to the kind and number of jobs available. Women should have a greater opportunity than males to find employment in high-demand, high-turnover, low-income jobs such as secretarial, clerical, or service work. Between ages 20-29, male migration approaches zero; female in-migration tends to exceed that of males. In short, the young adult ages are marked by relative immobility.

As careers and families become well established, in-migration rates for males and females increase in the 30-34 age group. Males have higher rates of



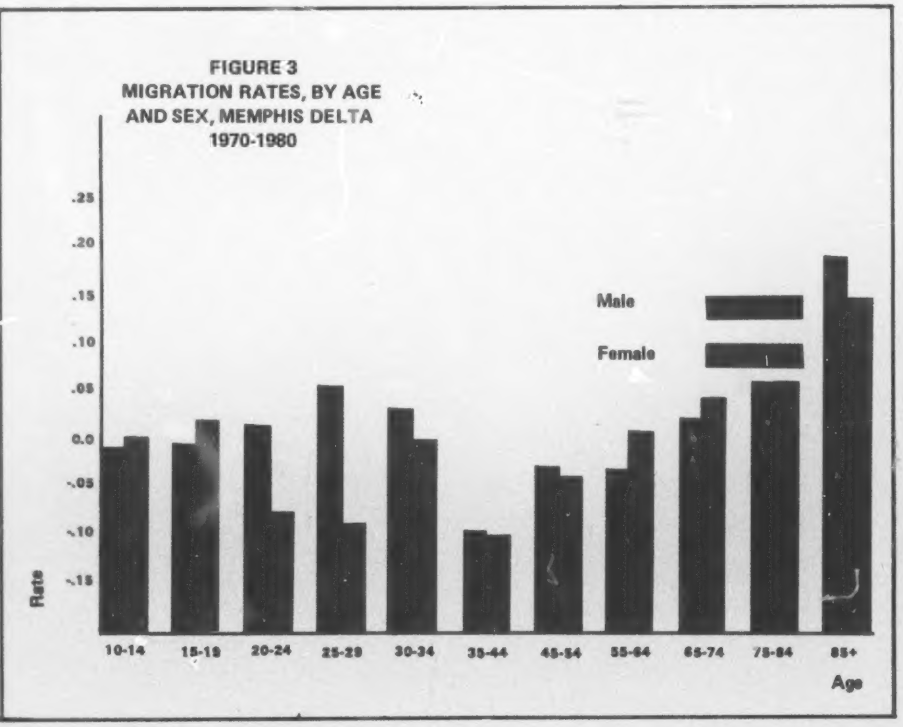


FIGURE 3
MIGRATION RATES, BY AGE
AND SEX, MEMPHIS DELTA
1970-1980

in-migration than females. Since most males by age 30 are married to females a few years younger, the excess of male-over-female in-migration suggests movement of single males into the state. This sex differential persists up through ages 60-64. The higher rates of male mobility may also be linked to long-distance moves, perhaps by newcomers to the Sunbelt from the urban North as well as return Tennesseans. At this time, data needed to separate inter-state from intra-state migration at the county level are not available.

Male and female in-migration rates tend to converge in the retirement years, and in older ages female in-migration rates exceed those of males. These figures simply reflect the higher mortality among older males than among females.

Development Districts

All Development Districts except the Memphis Delta District have similar migration patterns. Differences in migration patterns which do occur apparently are related to the presence or absence of a major metropolitan area within the district's boundaries. In the following discussion the nine Development Districts are grouped as follows:

1. Memphis Delta
2. Metropolitan — First Tennessee
   - East Tennessee
   - Southeast
   - Mid-Cumberland
3. Non-Metropolitan — Upper Cumberland
   - South Central
   - Southwest
   - Northwest

Differences between districts having or lacking a major urban center are probably due to the variation in job opportunities over the working years, social amenities available, and the relative attractiveness of the district for relocating firms. Non-metropolitan districts, those lacking a major urban center, may attract a larger portion of the return migrants. Counties in non-metropolitan districts but adjacent to metropolitan areas may be atypical of their district in general.

TABLE 1

RANK ORDER OF DISTRICTS BY TOTAL ESTIMATED NET MIGRATION, 1970-1980

District	Net Migration
Mid-Cumberland	112,169
East Tennessee	95,169
Southeast	46,128
Upper Cumberland	35,166
First Tennessee	32,771
South Central	28,494
Northwest	18,808
Southwest	17,858
Memphis Delta	1,537

Development Districts: Total Net Migration Estimates

Development Districts show a pattern of in-migration, but, of course, the magnitude of total migration differs in each district. Table 1 shows that all districts had net in-migration ranging from a high of 112,169 for the Mid-Cumberland to a low of 1,537 for the Memphis Delta. In the past decade, the initial population of a district and the presence of large cities probably influenced where new industries located. The degree of industrial expansion, the mix of new firms, and their age/sex-specific employment opportunities are each associated with size and age pattern of migration in various districts. With the exception of the Memphis Delta District, less migration occurs in those districts without major urban areas.

Patterns by Age Excluding Memphis

The increased job opportunities brought about by economic growth are particularly noticeable in the three Development Districts in eastern Tennessee; in-migration occurs in all age groups. The districts outside eastern Tennessee show varying degrees of in- and out-migration during the first job years, ages 20-29. The three more rural districts in western Tennessee show out-migration during the first job years, ages 20-29, but otherwise show in-migration. The Mid-Cumberland and Upper Cumberland Districts show in-migration in the interval 20-29 at the total level, but show sex-specific in- and out-migration in this age group.

Beyond age 29 all districts reflect the state pattern of in-migration, increasing from ages 25-29 through 30-34, and peaking at ages 35-44, then gradually declining over the intervals through age 85 and over. With the exception of ages 20-29, all districts, except Memphis, show in-migration.

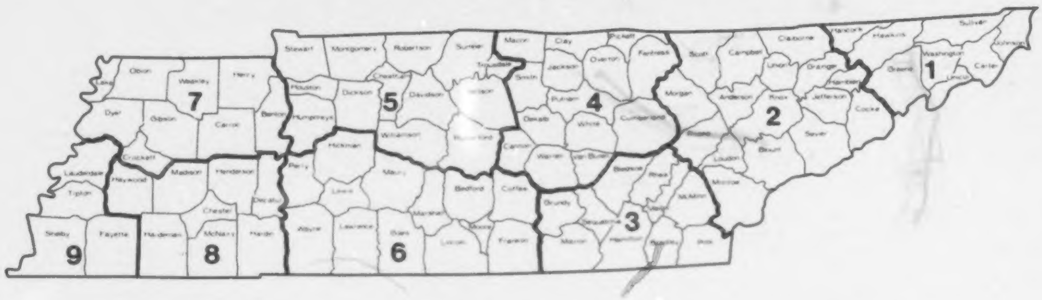
Grouping districts as either metropolitan or non-metropolitan provides a perspective on migration patterns in Tennessee. The differences noted during the job years, ages 20-29, suggest a further classification of districts. The cross-classification, as can be seen in Table 2, accentuates differences be-

TABLE 2

DISTRICTS BY TYPE OF CENTER AND MIGRATION THROUGH AGE 65

	Metropolitan Center	Non-Metropolitan Center
Similar In-Migration through Age 65	First Tennessee East Tennessee Southeast	Upper Cumberland
Varied In- and Out-Migration through Age 65	Mid-Cumberland	South Central Southwest Northwest

FIGURE 4: TENNESSEE DEVELOPMENT DISTRICTS, 1980



1 First Tennessee
2 East Tennessee
3 Southeast
4 Upper Cumberland
5 Mid-Cumberland
6 South Central
7 Northwest
8 Southwest
9 Memphis Delta

(Center for Business and Economic Research, 1980, p. 485)

tween metropolitan and non-metropolitan districts.

Memphis District Migration Patterns

The migration patterns of the Memphis Delta District differ from those of other districts. The estimate of total migration for the Delta District (1,537) ranks lowest of all districts (see Table 1). A further contrast is provided by comparing district migration rates. Migration rates express, on a per-person basis, migrants per estimated survivor 1980 population by age and sex. The tables and Figure 3 show that migration rates tend to center on 0.0, while rates for the remaining districts tend to fluctuate around .15 to .20. This contrast is particularly noticeable for ages 25-44.

In age groups 10-14, 20-24, 25-29, and 35-44, the Memphis Delta District shows out-migration. This pattern of out-migration differs markedly from the state migration patterns, especially in those ages that comprise the working years, 20-55. These migration rates, shown in Figure 3, suggest a shortage of job opportunities within the district.

Memphis District Pattern by Sex

Migration is near zero for children ages 10-14 of both sexes. The migration patterns of youth probably reflect family moves, marked by out-migration from the Delta. In the Delta District, migration patterns for the later teenage years and 20's are probably influenced by the relationship of the city of Memphis to the surrounding districts; Memphis is the urban center for a large rural area. In ages 15-19 both male and female in-migration levels increase; male in-migration levels exceed female levels. These patterns suggest first, that males leave their families at an earlier age in their search for independence; and second, that there is a continued migration of youth from rural to urban areas in the search for initial jobs. In ages 20-29 the migration pattern for males changes to one of out-migration. Perhaps employment opportunities wane for males as they enter their twenties, but remain viable for females in the same age group. For both sexes, out-migration occurs in the ages spanning the parent, mid-career, and family years when children are in junior and senior high schools. The highest levels of out-migration occur during ages 35-44, contrasting sharply with in-migration for the state and in all other districts. Out-migration continues for males until ages 45-54 and for females until ages 55-64.

Metropolitan and Non-metropolitan Districts

The cross classification of districts by migration pattern and metropolitan/non-metropolitan centers (see Table 1) provides a basis for examination of the similarities and differences in net migration between districts. A set of maps, Figures 5-10, is included to illustrate the most marked contrasts in net migration for males and females in the age group 25-44. These figures illustrate some of the distinctions made in the sections which follow and may be consulted in the relevant age-sex categories for each type of district net migration pattern. The legends in each figure reflect four mid-point rate levels; the actual migration rates may be found in the tables.

Metropolitan In-migration Through Age 65: District Patterns

In this category, the First Tennessee, East Tennessee, and Southeast Districts, in-migration is shown across all ages. In these districts, female in-migration rates exceed male in-migration rates through ages 20-24; for ages 25-54, male in-

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Donald W. Hastings, Jan C. Jacobsen

TENNESSEE NET MIGRATION RATES, 1970-1980

BY DEVELOPMENT DISTRICTS

FIGURE 5: MALES 25-29

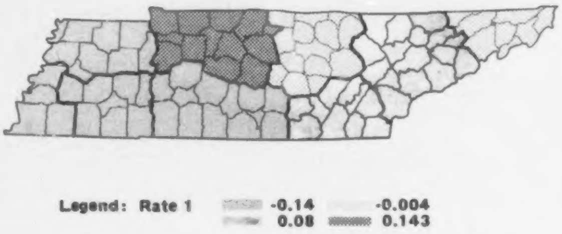

Legend: Rate 1
-0.14
-0.004
0.08
0.143

FIGURE 6: FEMALES 25-29

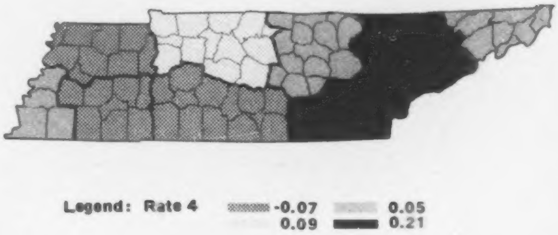

Legend: Rate 4
-0.07
0.05
0.09
0.21

FIGURE 7: MALES 30-34

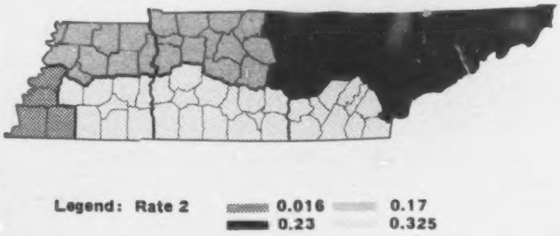

Legend: Rate 2
0.016
0.17
0.23
0.325

FIGURE 8: FEMALES 30-34

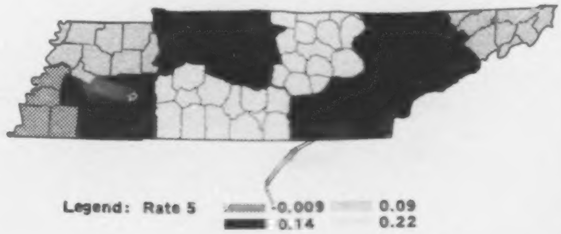

Legend: Rate 5
-0.009
0.09
0.14
0.22

FIGURE 9: MALES 35-44

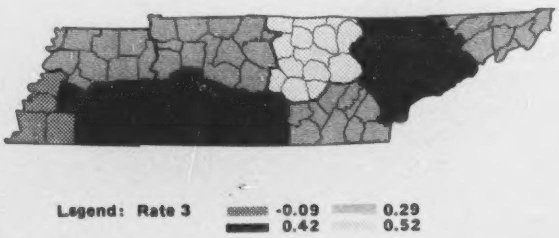
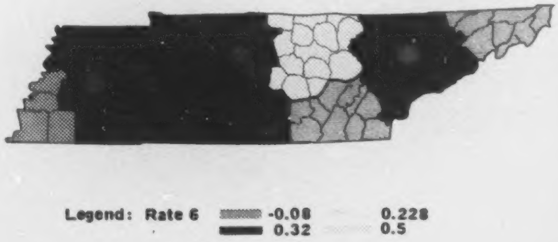

Legend: Rate 3
-0.09
0.29
0.42
0.52

FIGURE 10: FEMALES 35-44


Legend: Rate 6
-0.08
0.228
0.32
0.5

Note: Plotted rates are for 4 representative values of the distribution of rates across the district in an age group.

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POPULATION COUNTS, 1970 AND 1980, NET MIGRATION ESTIMATES AND MIGRATION RATES, 1970-1980, BY AGE FOR MALES AND FEMALES

	Male				Female				Total		
Age	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	Net Migration
STATE											
Under 1	36,357	35,577	--	--	34,620	33,757	--	--	70,977	69,334	--
1-4	131,344	131,791	--	--	126,705	124,963	--	--	258,049	256,754	--
5-9	191,709	179,209	--	--	184,401	170,719	--	--	376,110	349,928	--
10-14	201,743	189,403	23,000	0.121	193,995	180,537	20,133	0.110	395,738	369,940	43,133
15-19	192,255	219,497	29,480	0.149	185,699	210,756	27,143	0.141	377,954	430,253	56,623
20-24	153,688	209,291	10,863	0.058	167,489	214,122	21,322	0.116	31,177	423,413	32,185
25-29	129,227	190,309	2,305	0.015	134,441	197,678	13,456	0.081	263,668	387,987	15,761
30-34	109,746	175,239	25,179	0.201	117,827	181,397	15,564	0.118	227,573	356,636	40,743
35-44	211,901	259,838	29,043	0.276	234,661	274,003	26,306	0.229	446,562	533,841	55,349
45-54	209,037	221,088	24,783	0.126	230,109	244,278	18,483	0.082	439,146	465,366	43,266
55-64	171,667	197,720	21,333	0.121	195,316	232,360	20,095	0.095	366,983	430,080	41,428
65-74	105,552	138,519	17,909	0.148	136,614	184,508	21,287	0.130	242,166	323,027	39,196
75-84	55,446*	56,489	1,962	0.036	86,313*	96,629	9,430	0.108	141,759	153,118	11,392
85 & over	--	12,630	1,702	0.156	--	28,813	6,171	0.273	--	41,443	7,873
FIRST TENNESSEE											
Under 1	3,345	2,664	--	--	3,186	2,615	--	--	6,531	5,279	--
1-4	12,226	10,864	--	--	11,711	10,397	--	--	23,937	21,261	--
5-9	16,650	16,303	--	--	15,903	15,809	--	--	32,553	32,859	--
10-14	17,306	17,627	2,154	0.130	16,413	16,556	1,732	0.109	33,719	34,183	3,886
15-19	16,455	18,478	1,949	0.114	16,063	18,086	2,242	0.137	32,518	36,564	4,191
20-24	13,719	17,153	80	0.005	15,634	17,700	1,372	0.086	29,353	33,795	1,452
25-29	12,964	16,121	-47	-0.004	13,010	16,642	680	0.044	25,974	32,763	633
30-34	10,970	16,176	2,700	0.213	11,424	16,743	1,225	0.095	22,394	32,919	3,925
35-44	20,639	26,273	2,943	0.276	22,450	26,733	2,630	0.234	43,089	53,006	5,573
45-54	20,621	22,094	2,581	0.132	21,933	23,755	1,944	0.089	42,554	44,672	4,525
55-64	16,113	19,758	1,629	0.090	17,623	22,578	1,982	0.096	33,736	42,336	3,611
65-74	9,266	13,002	880	0.073	11,659	17,023	1,832	0.121	20,925	30,025	2,712
75-84	4,964*	5,001	566	0.128	6,945*	8,431	989	0.133	11,909	13,432	1,555
85 & over	--	1,112	129	0.132	--	2,401	579	0.318	--	3,513	708
EAST TENNESSEE											
Under 1	6,204	5,948	--	--	5,905	5,636	--	--	12,109	11,584	--
1-4	22,884	22,734	--	--	22,009	21,446	--	--	44,893	44,180	--
5-9	33,377	32,328	--	--	31,849	30,337	--	--	65,226	62,665	--
10-14	35,284	34,850	5,977	0.181	33,736	33,248	5,490	0.173	69,020	68,098	11,467
15-19	33,526	39,450	6,358	0.183	33,581	38,314	6,597	0.197	67,107	77,764	12,955
20-24	27,425	38,759	4,036	0.123	30,594	38,708	5,168	0.155	58,019	77,467	9,204
25-29	23,213	34,862	2,047	0.076	24,907	35,790	2,458	0.081	48,120	70,652	4,505
30-34	19,882	32,814	6,005	0.266	21,243	33,482	3,171	0.129	41,125	66,286	9,176
35-44	38,327	49,939	8,242	0.431	42,811	51,726	6,364	0.306	81,138	101,665	14,606
45-54	38,739	41,664	5,974	0.167	43,107	46,106	4,787	0.116	81,846	87,770	10,761
55-64	31,369	37,449	4,396	0.133	35,378	44,790	4,817	0.121	66,747	82,239	9,213
65-74	19,140	25,803	3,330	0.148	24,201	33,992	4,217	0.142	43,341	59,795	7,547
75-84	9,433*	10,345	1,184	0.129	14,425*	17,472	2,025	0.131	23,858	27,817	3,209
85 & over	--	2,181	314	0.168	--	4,948	1,164	0.308	--	7,129	1,478
SOUTHEAST											
Under 1	3,944	3,891	--	--	3,758	3,616	--	--	7,702	7,507	--
1-4	14,237	14,763	--	--	13,830	13,718	--	--	28,067	28,481	--
5-9	20,510	20,130	--	--	19,609	19,021	--	--	40,119	39,151	--
10-14	21,579	20,800	2,761	0.136	20,703	19,889	2,406	0.123	42,282	40,769	5,167
15-19	19,417	23,357	3,033	0.143	19,488	22,602	3,079	0.150	38,905	45,959	6,112
20-24	14,724	21,638	442	0.023	17,765	23,114	2,538	0.131	32,489	44,752	2,980
25-29	14,055	20,202	1,249	0.087	14,971	21,244	1,907	0.108	29,026	41,446	3,156
30-34	12,054	19,268	4,901	0.359	13,109	19,976	2,380	0.161	25,163	39,244	7,281
35-44	23,667	28,862	3,624	0.313	26,079	30,465	2,880	0.224	49,476	59,327	6,504
45-54	22,213	24,567	2,640	0.120	24,871	27,026	1,921	0.077	47,084	51,593	4,561
55-64	18,199	21,134	2,437	0.130	21,329	24,977	2,012	0.088	39,528	46,117	4,449
65-74	10,884	14,312	1,666	0.132	14,873	19,865	1,997	0.112	25,757	34,077	3,663
75-84	5,405*	5,800	590	0.113	8,728*	10,262	769	0.081	14,133	16,062	1,359
85 & over	--	1,213	143	0.134	--	3,043	753	0.329	--	4,256	896
UPPER CUMBERLAND											
Under 1	1,666	1,815	--	--	1,588	1,720	--	--	3,254	3,535	--
1-4	6,253	6,814	--	--	6,022	6,426	--	--	12,275	13,240	--
5-9	9,053	9,392	--	--	8,588	8,811	--	--	17,641	18,203	--
10-14	9,519	9,997	2,145	0.239	9,099	9,555	1,997	0.234	18,618	19,552	4,142
15-19	9,358	11,474	2,510	0.269	8,798	10,936	2,394	0.265	18,156	22,410	4,904
20-24	7,611	10,733	1,387	0.152	7,816	10,175	1,142	0.131	15,427	20,908	2,529
25-29	6,188	9,092	-33	-0.005	6,264	9,070	353	0.046	12,452	18,162	320
30-34	5,378	8,813	1,408	0.236	5,536	9,027	1,304	0.212	10,914	17,840	2,712
35-44	10,112	13,791	2,680	0.522	10,872	14,279	2,735	0.507	20,984	28,070	5,415
45-54	10,475	11,691	2,404	0.259	11,255	12,426	2,021	0.194	21,730	24,117	4,425
55-64	9,542	11,233	2,435	0.277	10,501	12,856	2,518	0.244	20,043	24,089	4,953
65-74	6,585	8,846	1,970	0.286	7,705	10,819	2,029	0.231	14,290	19,665	3,999
75-84	3,805*	3,779	627	0.199	5,046*	5,614	696	0.142	8,851	9,393	1,323
85 & over	--	909	156	0.207	--	1,612	288	0.218	--	2,521	444

*This number is the 75-and-over count for 1970.

POPULATION COUNTS, 1970 AND 1980, NET MIGRATION ESTIMATES AND MIGRATION RATES, 1970-1980, BY AGE FOR MALES AND FEMALES (Continued)

	Male				Female				Total		
Age	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	Net Migration
MID-CUMBERLAND											
Under 1	7,188	7,635	--	--	6,844	7,230	--	--	14,032	14,865	--
1-4	25,873	27,767	--	--	24,940	26,399	--	--	50,813	54,156	--
5-9	38,932	36,782	--	--	37,448	35,230	--	--	76,380	72,012	--
10-14	40,765	38,139	5,318	0.138	39,276	36,334	4,722	0.127	80,041	74,473	10,040
15-19	39,533	46,555	7,934	0.197	37,574	45,376	8,075	0.207	77,107	91,931	16,009
20-24	34,919	48,885	8,704	0.224	35,997	49,364	10,306	0.276	70,916	98,249	19,010
25-29	27,642	43,687	4,895	0.143	28,167	45,109	7,799	0.219	55,809	88,796	12,694
30-34	23,435	39,082	4,871	0.131	24,680	40,119	4,436	0.160	48,115	79,201	9,307
35-44	44,763	56,630	7,097	0.314	48,105	58,824	6,842	0.283	92,868	115,454	13,939
45-54	41,582	46,925	5,207	0.125	44,741	50,722	4,334	0.093	86,323	97,647	9,541
55-64	32,516	39,130	5,857	0.109	37,454	45,634	4,254	0.103	69,970	84,764	8,111
65-74	19,334	26,317	3,510	0.154	25,907	35,745	4,328	0.138	45,241	62,062	7,838
75-84	10,218*	10,576	1,322	0.143	16,828*	18,995	2,459	0.149	27,046	29,571	3,781
85 & over	--	2,452	429	0.212	--	5,834	1,420	0.322	--	8,286	1,849
SOUTH CENTRAL											
Under 1	2,275	2,435	--	--	2,162	2,171	--	--	4,437	4,606	--
1-4	8,748	8,856	--	--	8,130	8,295	--	--	16,878	17,151	--
5-9	12,410	11,759	--	--	12,133	11,163	--	--	24,543	22,922	--
10-14	13,526	13,041	2,112	0.172	12,718	12,038	1,810	0.150	26,244	25,079	3,922
15-19	12,191	14,323	2,042	0.154	11,712	13,713	1,642	0.130	23,903	28,036	3,684
20-24	8,235	12,143	-1,097	-0.093	8,951	11,761	-855	-0.074	17,186	23,904	-1,952
25-29	7,778	10,914	-915	-0.115	8,213	11,103	-483	-0.055	15,991	22,017	-1,398
30-34	7,252	10,403	2,417	0.322	7,585	10,813	1,976	0.245	14,837	21,216	4,393
35-44	14,274	17,310	2,878	0.415	15,510	18,315	2,858	0.386	29,784	35,625	5,736
45-54	14,945	15,431	2,308	0.176	16,110	16,533	1,679	0.113	31,055	31,964	3,987
55-64	12,972	14,757	2,236	0.179	14,274	16,773	1,996	0.135	27,246	31,530	4,232
65-74	7,933	10,865	1,826	0.202	9,999	13,877	2,059	0.174	17,932	24,742	3,885
75-84	4,440*	4,423	626	0.165	6,675*	7,229	847	0.133	11,115	11,652	1,473
85 & over	--	955	76	0.087	--	2,237	486	0.278	--	3,192	562
SOUTHWEST											
Under 1	1,616	1,705	--	--	1,537	1,641	--	--	3,153	3,346	--
1-4	5,990	6,456	--	--	5,758	6,200	--	--	11,748	12,656	--
5-9	8,743	8,165	--	--	8,527	7,766	--	--	17,270	15,931	--
10-14	9,226	8,672	1,134	0.131	8,934	8,447	1,202	0.142	18,160	17,119	2,336
15-19	8,687	9,638	986	0.109	8,943	9,972	1,486	0.168	17,630	19,610	2,472
20-24	5,964	8,372	-665	-0.079	6,918	9,145	276	0.031	12,882	17,517	-389
25-29	5,023	7,816	-618	-0.107	5,383	8,214	-638	-0.093	10,406	16,030	-1,256
30-34	4,442	7,244	1,467	0.304	4,704	7,516	689	0.131	9,146	14,760	2,156
35-44	8,878	10,773	1,722	0.408	9,926	11,420	1,566	0.342	18,804	22,193	3,288
45-54	9,489	9,775	1,678	0.207	10,479	10,819	1,339	0.141	19,968	20,594	3,017
55-64	8,963	9,268	1,365	0.173	10,210	10,872	1,260	0.131	19,173	12,237	2,625
65-74	6,338	7,516	1,096	0.171	7,699	9,826	1,252	0.146	14,037	17,342	2,348
75-84	3,545*	3,434	400	0.132	5,211*	5,373	459	0.093	8,756	8,807	859
85 & over	--	804	102	0.146	--	1,667	300	0.219	--	2,471	402
NORTHWEST											
Under 1	1,882	1,826	--	--	1,794	1,683	--	--	3,676	3,509	--
1-4	6,796	6,701	--	--	6,529	6,301	--	--	13,375	13,002	--
5-9	10,010	9,254	--	--	9,410	8,604	--	--	19,420	17,858	--
10-14	10,571	9,845	1,260	0.128	10,041	9,391	1,134	0.121	20,612	19,236	2,394
15-19	10,058	11,204	1,320	0.128	9,810	10,861	1,508	0.152	19,868	22,065	2,828
20-24	7,512	9,856	-459	-0.047	8,165	9,831	-121	-0.012	15,677	19,687	-580
25-29	6,398	8,381	-1,342	-0.185	6,537	8,680	-1,014	-0.126	12,935	17,061	-2,356
30-34	5,439	8,168	924	0.151	5,818	8,646	604	0.095	11,257	16,814	1,528
35-44	10,778	12,898	1,661	0.324	11,913	13,600	1,582	0.281	22,691	26,498	3,243
45-54	11,945	11,322	1,608	0.166	13,738	12,775	1,455	0.129	25,683	24,097	3,063
55-64	12,082	11,683	1,859	0.189	13,495	14,154	1,622	0.129	25,577	25,837	3,481
65-74	8,362	10,333	1,831	0.215	10,398	13,252	2,006	0.178	18,760	23,585	3,837
75-84	4,681*	4,448	446	0.111	7,090*	7,194	557	0.084	11,771	11,642	1,003
85 & over	--	973	46	0.050	--	2,181	321	0.173	--	3,154	367
MEMPHIS DELTA											
Under 1	8,237	7,658	--	--	7,846	7,445	--	--	16,083	15,103	--
1-4	28,337	26,836	--	--	27,776	25,781	--	--	56,113	52,617	--
5-9	42,024	35,096	--	--	40,934	33,978	--	--	82,958	69,074	--
10-14	43,967	36,432	107	0.003	43,075	35,079	-367	-0.009	87,042	71,511	-260
15-19	43,030	45,018	3,304	0.076	39,730	40,996	211	0.005	82,760	86,014	3,515
20-24	33,579	41,752	-1,609	-0.038	35,649	44,324	1,479	0.037	69,229	86,076	-130
25-29	25,966	35,234	-2,972	-0.090	27,799	41,823	2,371	0.067	53,765	81,057	-601
30-34	20,894	33,271	420	0.017	23,728	35,075	-256	-0.009	44,622	68,346	164
35-44	40,463	43,398	-1,915	-0.095	46,995	48,641	-2,026	-0.087	87,458	92,039	-3,941
45-54	39,028	37,619	98	0.003	43,875	44,116	-1,177	-0.026	82,903	81,735	-1,079
55-64	29,911	33,308	595	0.018	35,052	39,726	-705	-0.017	64,963	73,034	-110
65-74	17,710	21,525	1,131	0.055	24,353	30,109	1,010	0.035	42,063	51,634	2,141
75-84	8,955*	8,683	206	0.024	15,365*	16,059	515	0.033	24,320	24,742	721
85 & over	--	2,031	258	0.146	--	4,890	859	0.213	--	6,921	1,117

*This number is the 75-and-over count for 1970.

migration rates exceed those of females.

The in-migration levels in the First Tennessee and East Tennessee districts roughly parallel each other for ages 25-54. The Southeast District deviates from the pattern of the other two districts, as male in-migration levels far exceed female levels for ages 30-44. All the districts in this group show declines in the level of in-migration from ages 45-54 on.

Non-metropolitan In-migration Through Age 65: District Patterns

The Upper Cumberland District differs from other non-metropolitan districts not only by having in-migration in ages 20-29, but also by being quite distinct in the lack of variation between male and female in-migration rates. All other districts show variation by age and sex in migration rates, especially over the working years. The Upper Cumberland District, in effect, has one migration schedule for both males and females of ages 10-74. Changes affecting migration in the Upper Cumberland District appear to affect both sexes in the same manner. For example, if resort or retirement communities which appeal to established families or retired couples have been a major source of development in the district, then the patterns of migration would be reasonable. The type of growth and industrial movement in the Upper Cumberland District also may be more a service and residential mix than growth seen in other districts. The Upper Cumberland District shows the highest rates of in-migration over all districts in the 35-44 age interval (+.5 for both males and females).

Non-metropolitan Varied Rate District Patterns

The South Central, Southwest, and Northwest Districts show similar levels of migration for males and females. Male and female in-migration rates are highest in the 35-44 interval. Unlike other districts which show variation in migration rates for males and females in ages 20-29, these districts have similar rates of out-migration for males and females in these ages. Over ages 30-65, male in-migration levels exceed female levels. The South Central District, however, is the only district where in-migration levels for women exceed those for males in ages 30-44. The districts generally show the same patterns of migration as the state except where deviations have been noted.

Metropolitan Varied Migration Districts

The Mid-Cumberland District had the highest total level of in-migration of all districts. The variation in its migration patterns precludes grouping it with any of the other districts. Male migration rates indicate substantial out-migration during the first job years, whereas female migration rates indicate in-migration over the intervals 20-29. Additionally, the difference between male and female rates in the intervals spanning the mid-career years is much greater than that found in any other district. Except for the noted differences, the Mid-Cumberland District shares the general migration experiences of the other districts and the state, i.e., that of in-migration showing a peak at ages 15-19, declining to lower levels in the 20's, rising to a higher peak at ages 35-44, and slowly declining over the remaining age groups.

Long-term Questions

Between 1970 and 1980, Tennessee became a net importer of people. Net in-migration increases tax revenues, but at the same time can lead to contrary demands on the state's resources. The children who moved to Tennessee with their families or single parents will age and enter the job market. Will there be job opportunities for them? Can the present mix of business and industry sustain Tennessee employment over the coming years? In-migration indicates an expanding labor pool, but lays the seeds for future unemployment should the economy weaken. As the population ages and the in-migration of people 65 and over continues, will there be sufficient resources to meet the demands for services directed at senior citizens? All these questions can be answered only over time, but an awareness of the possibilities posed may prove extremely helpful in state planning.

Space does not permit the inclusion here of the methodology used by the authors. Those who would like a copy of either the methodology or copies of computer programs used in the indirect standardization, generation of life table values, and net migration estimates may obtain them from the authors c/o the **Survey of Business.**

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Top: Fort Sanders, Second Valley homes, periphery of Fair Site. Center: Clinch Avenue Viaduct during reconstruction. Bottom: Completed Fair Site.

Retrospect and Prospect: KNOXVILLE, A CITY IN TRANSITION

Michael J. McDonald
W. Bruce Wheeler

Even before the closing of the 1982 World's Fair on October 31, many people began to call both for assessments of the Fair's impact on Knoxville and for formulas explaining how the city could build on the Fair's momentum.

This study is not intended to measure the impact of the World's Fair on the city, nor does it show how Knoxville can use the Fair for future development. Rather, the authors hope to provide an historical framework into which any assessment of the World's Fair can be placed.

As will be explained later in this article, the 1982 World's Fair was an attempt by some Knoxvillians both to replicate successful experiments of other southern cities (which used devices other than a World's Fair) and at the same time to seek to reverse historical trends and patterns which they saw as profitless and unhealthy. At this point, it is still not clear whether Knoxville's application of other cities' innovations has come soon enough (some cities began these innovations twenty years ago) or whether some of the historical trends are too deeply entrenched to be significantly altered.

Missed Opportunities

Within two decades after the Civil War, Knoxville had been bidding strongly to become one of the more important economic centers in the growing New South. Formerly a small river town, Knoxville saw its growth, like that of Terminus, Georgia (later Atlanta), and Big Lick, Virginia (later Roanoke), fueled by a fruitful combination of railroad growth, an extensive wholesale jobbing network in building supplies and hardware, food mills, and a sizable iron works. Growth in the 1880's was rounded off by textiles, marble, and furnishings and by the location in Knoxville of several coal companies.

The growth sustained by the city's first industrial boom continued into the twentieth century. Indeed, the period between 1900 and the First World War saw most of Knoxville's housing stock built, with a boom that culminated in the extensive annexations of 1917

Michael J. McDonald, *Associate Professor of History at The University of Tennessee, Knoxville, is co-author (with John Muldowny) of* **TVA and the Dispossessed** *(1982), a study of the Norris Dam Project.*

W. Bruce Wheeler, *Associate Professor of History at The University of Tennessee, Knoxville, has recently completed a book-length manuscript on urban Jeffersonianism. Together the authors have written a history of modern Knoxville, to be published by the UT Press in 1983, and are now researching a history of the Tellico Dam Project.*

which shaped the configuration of the city on into the 1960's.

On the brink of the Depression, Knoxville then was in many ways a typical New South city. More diversified industrially than many of its southern counterparts (Birmingham, Gastonia, Spartanburg, Chattanooga, etc.), Knoxville nevertheless exhibited many of the same patterns, opportunities, and problems as did at least two dozen southern urban complexes. For one thing, these growing cities gradually became enmeshed in national and international economic rhythms, for good or ill. No longer could they be immune to or unaffected by national or international recessions, panics, or depressions. Moreover, these southern cities had come to act as employment magnets, pulling the most loosely attached out of the rural labor force into the cities. For example, when TVA built nearby Norris Dam in the years 1933-1936, it removed over 3,500 farm families, most of whom were cash-poor and land-poor. The farmowners who sold land to TVA held an average (mean) of but 45.0 acres. Knoxville's industrial growth absorbed many of these people, as urban industrial growth had done since the late eighteenth century, acting remedially upon what had been a poor ratio of man to land in the hinterland.

But with the national Depression, Knoxville, like its urban counterparts, could no longer sustain her absorptive role. With many of her industries shut down or limping along, the city saw her inhabitants, many of whom had recently come seeking the promise of industrial jobs, having to drastically reduce their standards of living or return to the self-sufficing farms of the hinterland. For those who stayed in the city, employment opportunities were drastically reduced. In 1930, 2,284 Knoxvillians were unemployed, and by 1937 – even with the New Deal – over 7,500 still sought work.

Effects of the Depression

In these respects, Knoxville was hardly unique. In fact, though hit hard by national economic woes, the city still retained a strong regional bias, which meant that relief of sorts could be obtained in the surrounding countryside. In any case, the city's "failure" (if indeed it was) was rooted in the national collapse of the economic structure, and not in any conscious choices or the lack of them. Retrospectively, however, it would appear that one segment of the city's business community did see the depression as personal failure.

In 1930, the city's banking community was stunned by the failures of the Guaranty Trust Company, the Holston-Union Bank and Knoxville's largest real estate firm, and in 1932 by the collapse of the East Tennessee National Bank. This meant that every one of the city's national banks had disappeared by January 1932. Many people (both inside and outside Knoxville's present banking community) are convinced that the shocks of Depression and of banks collapsing deeply affected the collective mentality of the city's bankers, making them exceedingly cautious, unwilling to take chances, and unwilling to offer venture capital to all but their close friends or associates.

After the Depression

The Tennessee Valley Authority proved to be something of a boon to the city's recovery from the Depression. First of all, it eased area economic malaise with the construction of Norris Dam, some 35 miles northeast of Knoxville. As it moved out of the immediate area, it nonetheless would remain in the region to build some important dams as the economy geared up for the Second World War. TVA's establishment proved to be a further boon to Knoxville's economy by supplying cheap electrical power. Nearby Oak Ridge (20 miles) was selected as a site for developing the Manhattan Project's atomic bomb program (Clinton Engineering Works, later the Atomic Energy Commission). The war also stimulated the development of the area's electro-metallurgical industry. Though established in the area in 1928, ALCOA (Aluminum Company of America) would grow to giant size during the war. ALCOA and Oak Ridge were major, new industries presaging a period of technologically oriented growth sustained not only by an enormous technological compex at Union Carbide of Oak Ridge, but by TVA and the soon-to-burgeon University of Tennessee in Knoxville.

Yet two decades after the war, Knoxville, like many other cities of the New South, was faltering economically, the central business district was in disarray, and the once-significant textile industry was barely surviving (and surviving only by paying the lowest industrial wages in the South). Clearly, Knoxville and many other cities of the New South were in trouble. It was less an issue of low wages – indeed, low wages can serve regionally to offset higher transportation costs as a factor in attracting new industry – than of the type of industry involved. Knoxville's industries appear to have been either of the older textile and apparel types, which were in trouble everywhere in the South after the war, or of the type of industry whose location factors demand proximity to natural resources. In Knoxville 58 percent of industries were of that type as opposed to 28 percent in the U.S. (Hammer, p. 135). Other industries were engaged either in early or primary stages of production or "raw material to final" production processes.

Emergence of post-World War II segmented production processes and more highly fabricated products meant a movement of plants away from raw material sites and allowed a greater flexibility in plant location choice. With the burgeoning of the interstate system after the 1956 Federal Aid Highway Act (42,500 miles of projected superhighway) the South became an attractive locational choice for firms looking to build stage and final fabricating plants close to markets rather than to raw materials. In addition, the South had become a locational choice for raw materials as the need to meet pent-up wartime demands pressed heretofore untapped natural resources into use, which in turn attracted more industries, and hence created markets, thus becoming one of the great market locations in the decades after WW II. The South as a whole had reached a sort of "critical mass" in industrial development.

In light of what was happening thoughout the South in the post-war decades, it is clear that cities and their leaders received mixed economic messages as to how to respond. Metropolitan Knoxville, for example, paid a price for its older dependence on old-South textile and apparel plants. In the 1950's, Cherokee, Venus Hosiery, Brookside, and Appalachian Mills closed. Between 1948 and 1960 textiles in Knoxville were down 2,900 jobs and apparel down 1,200. Nor was it much better in what have been called the "premature" new-line industries (Hammer) like ALCOA, which, with the end of the Korean War and a huge stockpile of aluminum, dropped 3,500 jobs. Small wonder that in the decade of the 1950's Knoxville's per capita income was behind that of Chattanooga, Nashville, the state, and the Southeast, as was its rate of economic growth. Like many older southern cities, Knoxville for some similar reasons (textiles) and some different reasons (ALCOA) was going through a turbulent period. It had not yet confronted the shape of its future role.

If new industries in any number had come to the city to bolster a declining economy hit hard by mill closings and the lay-offs at ALCOA, the situation would have looked brighter. But in the 1950's and 1960's the city was not effective in attracting new industry. Between 1956 and 1961, thirty-five firms, over 75 percent of which were "new-line" industries, expressed an interest in Knoxville. Twenty-nine of these prospects would have employed 10,300 people, but none came to Knoxville (Hammer).

Knoxville lagged behind the region's cities in providing sites for industry through the establishment of industrial parks. Charles "Chili" Dean, KUB executive who was, in 1965, Chairman of the Chamber of Commerce's Industrial Sites Committee, wrote that four previous studies had underlined Knoxville's "desperate" need for industrial siting and had recommended three sites, but that nothing had been done. "Responsible leadership in this community," he argued, "has not seen fit to push the acquisition and development of medium and large industrial sites" (Dean to GKCC Industrial Council, 1965). In fact, in 1960 Knoxville was woefully inadequate in the matter of establishing industrial sites. Birmingham had six; Atlanta, nine; Louisville, eleven; Charlotte, ten; Memphis, eight; and Dallas, twenty-one. The Phillip Hammer Company, which had surveyed the firms' interest in Knoxville, reported: "Insofar as this information can be considered reliable of management's true reasons, industrial land appears to have been the main obstacle to location of these enterprises in Metropolitan Knoxville."

Growth of regional markets and the spatial distribution of industries is thought to be a characteristic of growth in the modern South. Certainly it would be hard to deny that the Interstate system and truck haulage revolution since WW II has been a factor in implementing both the regional market and industrial distribution. While the authors have not analyzed the transportation network and Knoxville's growth patterns, it seems only fair to point out that the city was not efficiently linked by interstates to Nashville until the mid-1970's, and it was nearly a decade and a half before it was connected by interstate southwest to Chattanooga and Atlanta, southeast to Asheville and the Carolinas, and northeast to the Tri-Cities complex and Virginia. Knoxville very likely suffered some ill effects from its relative isolation and the lateness with which the interstate complex finally connected the city and its SMSA to the rest of the state and region. In fact, it was only with the completion of interstate linkages that Knoxville was able to service a World's Fair and eventually to evolve as a service sector for the surrounding area.

Regional Growth

The industrial plants that bypassed the city did locate in the region. Between 1953 and 1960, 483 new plants were created in the Great Valley of Tennessee between Chattanooga and Tri-Cities (Hammer). Forty-four percent of these were located outside the three metropolitan areas (Knoxville SMSA, Chattanooga SMSA — the Tennessee part, and the Tri-Cities area), and they generated 41 percent of the nearly $215 million dollars in plant investments and 34 percent of the jobs. The development of industries in the rural counties of East Tennessee's Great Valley, plus the eventual opening up of interstate links, paved the way to the recognition that Knoxville's future lay not in industrial development but in a highly evolved service sector for the rest of the Valley.

"The Ugliest City"

Hence, while Knoxville's problems in many ways paralleled the difficulties of other cities, its response to those problems was in many ways quite different from that of its southern urban counterparts. In response to postwar economic problems, many cities had sought successfully to attract new industry, secure interstate highway linkages, eliminate or better conceal slums, and rejuvenate downtown retail trade. In contrast, Knoxville appeared able to do none of these things. Yet, rather than silence critics with new plans, schemes and actions, many Knoxvillians instead grew increasingly defensive of their city as it was, preferring to extol its many assets (which in some cases — like the absence of legal liquor — some critics regarded as liabilities) rather than face its problems.

In no event is this more obvious than a totally insignificant and unimportant tempest which occurred in 1946. In that year, traveler-writer John Gunther's book *Inside U.S.A.* appeared. The popular author's opinion of Knoxville was hardly a subtle one: "Knoxville is the ugliest city I ever saw in America, with the possible exception of some mill towns in New England." Later, Gunther remarked that Knoxville possessed "an intense, concentrated, degrading ugliness."

The reaction of most Knoxvillians to Gunther's assault was predictable. Years later some remembered that the author's comments elicited more unity (against Gunther) than almost any issue before or since. Sidewalk interviews by the Knoxville *News-Sentinel* showed obvious local hostility. And for its part, the Knoxville *Journal* refused to print one word about Gunther's remarks, preferring instead to agonize over the Communist influence in Hollywood or to defend syndicated columnist and New Deal arch-enemy Westbrook Pegler.

But perhaps the most interesting and perceptive reaction to Gunther's diatribe came from Knoxville journalist Lucy Templeton, whose *News-Sentinel* column "A Country Calendar" was a popular and chatty mixture of history, book notes, recipes, and local color. In her column of June 1, 1946, Templeton stung fellow Knoxvillians by admitting that Gunther basically had been correct and that the city she loved was at base a grimy, sooty, ugly place even amidst the natural beauty of the Smoky Mountains. Worse, she questioned whether Knoxvillians even possessed the *will* to recognize their problems, face up to them, and solve them. Readers may have seethed, but Templeton, a Bryn Mawr alumna and a 1901 University of Tennessee graduate, charter member of the Pi chapter of Chi Omega sorority, widow of George Mabry Templeton, and *Sentinel* staffer off and on from 1904, was so impeccably connected that no one dared publicly to rebuke her. But more important is the fact that she put her finger directly on the problem. The problem was not that Knoxville was physically an unattractive place (in their time, Pittsburg, Akron, Richmond, Norfolk, and many other cities have been labelled "ugly"). Rather, the problem was that Knoxville's reaction to difficulty and criticism often was to deny that the problem existed at all.

Urban Blight

By the postwar decade, however, much of the old inner city simply appeared to be worn out and slipping into urban decay. Morningside Heights, McAnnaly Flats, Mechanicsville, Beaumont, and Lonsdale were all areas beginning to show physical and cosmetic slippage. To the casual and not-so-casual observer, Knoxville of the 1950's and 1960's had not only many points of festering urban blight, but those weak points were even more easily visible in the days before interstate construction began to carve them up and effectively disguise their existence. As early as 1939, a WPA study of housing in the city showed that 31 percent of all city structures were either in need of major repairs or unfit for use. In addition, Knoxville had a serious air pollution problem from the hundreds of tons of soot spilled annually on the city from soft-coal-burning houses, businesses, industries, and railroads.

The "Gunther incident" was hardly an isolated example of Knoxvillians' chauvinism for their city. One year earlier, in 1945, in response to the criticism of Knoxville by some Oak Ridgers who resented Knoxville's attempt to climb on the Atomic Bomb bandwagon, Knoxvillians rushed to defend their city against attack. One said, "There are more religious and God-fearing people in Knoxville than most cities, and I hope we continue to have it that way." But one Oak Ridger retorted (though by no means objectively): "You [Knoxvillians] have been floating in a castle on a cloud for a long time. The blast that Clinton Engineer Works dealt Japan ought to awaken Knoxvillians from their sweet slumber of reveries."

As Knoxvillians defended themselves against the "foreigners" in Oak Ridge or impressionistic critics like John Gunther, the city during the postwar period experienced significant out-migration. Between 1950 and 1960, Knoxville actually *declined* in population, from 124,183 in 1950 to 111,800 in 1960. If natural increase for the decade is taken into account, Knoxville's out-migration significantly exceeded the -12,383 difference between the two censuses. In statewide terms, 12.2 percent of all Tennessee's out-migrants came from Knoxville. Over half of those left the state entirely, immigrating to Florida, Ohio, Georgia, California, Virginia, Alabama, and North Carolina, where job opportunities were rumored to be more abundant. According to the 1962 Hammer Report, "There are few metropolitan areas in the U.S. for which a sharper decline in population growth – between two consecutive decades – has been recorded."

Even more disturbing was who was leaving the city. Further examination of Knoxville's population by age categories reveals that an enormous proportion of the out-migrants were men and women between the ages of 25 and 44, the so-called "productive" group which traditionally is more fully employed, more upwardly mobile, more consumer-oriented (homes, automobiles, furniture, adult and children's clothing, etc.), and which pays a comparatively high portion of taxes. Between 1950 and 1960, Knoxville lost roughly 12,000 people from that group, as their share of the city's total population dropped from 31.6 percent in 1950 to an alarming 24.4 percent in 1960. "The simple reason for this shift," bemoaned the Hammer Report, ". . . was a sharp drop in the number of employment opportunities . . . within metropolitan Knoxville during the 1950-1960 period."

Rise of the Suburbs

While the flow of population outward reduced the city's tax base and left an increasingly vulnerable inner city population, it also changed the focus of the city's retail trade from the central business district (CBD) to the rapidly growing suburbs, with their shopping centers and vast parking lots, symbols of the growing "automobility" of Knoxville since World War II. This led to a decay of the central business district (CBD), which paralleled the decay of so many old neighborhoods within the pre-1917 annexation boundaries (which lasted until 1963-1964). But the CBD had become so traffic-choked that, in the absence of a first-rate transit system, it was dying anyway.

Once again, these problems were hardly unique to Knoxville. More interesting was the city's response to them. In an effort to facilitate traffic flow in the downtown (so as to attract more suburban shoppers) in 1959, Knoxville safety director David Garrison tried to strictly enforce parking regulations. In response, irate businessmen accused the overzealous Garrison of driving away shoppers. Calling for some kind of reforms, the *News-Sentinel* said, "Knoxville is no crossroads village."

The Politics of Conservatism

In a 1952 article on Knoxville's business leaders, *Fortune Magazine* reported that a large portion of the city's business community was less interested in civic improvements than in their own businesses, homes, families, and churches. The article may have been less than fair, but more likely, the city's small number of business leaders (who made up what W. Jack Walker in 1978 called "an ultraconservative, almost caste system") firmly believed in the limited role of government in the private sector and at the same time avoided the political arena which most observers called one of the roughest in the state, if not the entire South.

In such an atmosphere, it is not surprising that the city's politics almost perfectly mirrored the city's response to problems and difficulties: confused, occasionally ostrich-like, displaying a gritty determination that things were just fine. Looking back, local television executive John Reese told *The South Magazine* in 1978 that "I'm convinced Knoxville should have been the Atlanta of the South. . . . We have all the ingredients but we didn't have the leadership." Many Knoxvillians sensed the things which were happening to the city, but they had no visionary political leadership. Rather, they had a political spokesman who appealed to their bitter sense of economic loss and resistance to change — grocer-politician Cas Walker. Though recalled as mayor in 1946, he nonetheless boasted an impeccable showing in councilmanic races and in the 1950's and 1960's was never defeated.

Walker had strength in the old inner-city wards, with a powerful blue-collar black and white following which became more resistant to change as old neighborhoods were eroded, internal out-migration continued, and the inner city became increasingly an embattled enclave surrounded by upwardly mobile suburban units in the county.

Opposition to Walker was not lacking. It came principally from one man — two-time mayor and civic leader George Dempster, a wealthy industrialist. Dempster and men like him, Edward Chavannes, for example, were advocates of the old progressive streak in municipal government — "good government" by a merchant-business-civic elite. They abhorred Walker and what they considered to be his crass political behavior. Essentially, they wanted orderly and efficient, but in most respects, not a radically *different* city, one in which the "best people," the civic elite, ran the machinery.

Walker reacted instinctively against those who opposed both his image of the city and his power in city government. He defended what he believed were the interests of Knoxville's older industrial inhabitants, both black and white, against the threats of change and higher taxes. In turn, he opposed a new civic coliseum, liquor-by-the-drink, water fluoridation, metropolitan government, and any form of tax increase. As Walker and Dempster and their heirs-apparent continued to square off in the political arena, they failed to notice some very important facts. When the city annexed many of the surrounding suburbs in 1962, it had brought into the city an enormous infusion of new blood from out of state — university people, high-tech employees, and upwardly mobile suburbanites, all of whom, with the planners and developers who had made their suburbs, constituted a force behind which a new politics could be articulated, and one that would eventually sidestep the political deadlock that had added to and enhanced the city's isolation and parochialism. Mayor Leonard Rodgers had begun to nudge the city in this direction by the mid-to-late 1960's, but clearly the election of Kyle Testerman as mayor would bring with it the accession of the "developer" bloc to power, a new visage to Knoxville politics and to its future.

The New Regime

In the difficult quarter-century of economic confusion and political carnage since World War II, something had happened in Knoxville. The city was, in many respects, at the tail end of a difficult and chaotic period of transition. Where his immediate predecessors had hoped to revive the CBD through a series of cosmetic devices — the "Gay Way" and the "Market Square Mall," for example — Testerman put together a task force to replan the CBD around the fact that Knoxville was no longer a regional industrial center, but rather a regional service center. Recognizing that, save for some specialty shops and entertainment complexes, the bulk of the CBD's general retail trade was lost irrevocably to the suburban malls which were growing up like mushrooms after a spring rain, Testerman tended to concentrate his energies on securing newly-available federal monies through grants to hasten the evolution of the inner city as a center for finance, real estate, insurance, and other service sector components, while industry tended to locate itself up and down the valley outside of Knoxville.

Testerman and his cohorts were not without opposition. His impatient manner angered some, as did his decision to break a garbage collectors' strike. As a developer, the mayor often was accused of backing only projects which benefited him or his developer friends. Some were convinced that he favored the upper-middle class suburbs of West Knoxville. Indeed, in addition to Walker (who initially supported Testerman but quickly came to oppose him) and the more conservative forces, Testerman as mayor attracted a host of enemies, the number of which made re-election difficult. In fact, he was defeated in 1976 by Randy Tyree.

The Testerman mayoralty came at a time when the city's transition had already clearly begun. Indeed, in urban history, there are seldom "great men" who cause the change in direction. Rather, there are men who become leaders by seizing opportunities offered by new trends. Availability of federal monies, grants, better interstate connections, emerging new service sector roles, university and suburban growth were pronounced trends before the era of Testerman, and would continue long after his defeat.

It has now been nearly a decade since the idea of a World's Fair surfaced in Knoxville. Now the Fair has come and gone, has attracted millions of visitors, sped up interstate construction, and transformed a 70-acre liability into the nucleus for the revitalization of Downtown. The coming of the Fair to Knoxville not only attracted three new hotels to service future convention trade, but created a permanent fair building (Technology and Lifestyle) which can serve as a focus for conventions in the future. The World's Fair has left Knoxville with facilities large enough to service 90 percent of any categories of national conventions.

A retired TVA regional planner and former UTK professor of regional planning, A.J. ("Flash") Gray had been asked to be a consultant in the redevelopment of the Fair site. Since the Fairfield Corporation had signed a contract to redevelop the site, Gray was technically out of the picture. Yet he is still brimming over with enthusiasm, quick to praise and criticize, eager to offer insights gained from long years of experience.

"The big job now," said Gray, "is the need to keep the momentum of the World's Fair." Very downtown-centered, he sees that challenge broken down into two parts: short-run goals and long-term objectives. Among the short-term goals is the need to keep Knoxvillians' attentions focused on the Fair site itself. "We need to keep it (the Fair site) a lively place," Gray noted, adding that the festival retailing concept, good restaurants, entertainment, and cultural attractions should dominate the short-term phase.

These factors should also enhance Knoxville's role as a service center for East Tennessee. Available office space has mushroomed in the past decade, and, it appears, will continue to enjoy healthy growth. People who live in the suburbs but work in the city have an expanded array of restaurants and retail shopping available, and those who live in the suburbs will doubtless be attracted to the revitalized shopping and entertainment capacities of the inner city. More dramatic and ultimately of more significance are the city's and Fairfield's long-term objectives. For years city planners, economists, urban specialists, and elected officials all over the country have been trying to lure the affluent middle class back to the center cities to live. Knoxville, however, was at a comparative disadvantage, since much of its downtown housing stock was old and badly deteriorated. Hence, suburban development continued beyond the city limits, where shopping malls followed and where annexation has been stubbornly resisted.

In 1977, a Regional Urban Development Assistance Team (RUDAT) strongly recommended that the city use the Fair site for major residential development (townhouses, condominiums, apartments). One member of that team, an architect-developer from New York City, stated unequivocally that unless 600 residential units were placed on the Fair site after 1982, the opportunity would be wasted.

Fairfield's initial plan (announced with considerable fanfare in mid-October 1982) calls for approximately 1,000 residential units. "Some people think that's too many," Gray noted, "but Fairfield believes that a sense of community so important to such a venture must be achieved en masse." In other words, Fairfield proposes to create a community within a community, an enclave of young, affluent, probably childless singles and couples, professionals and consumers. "One survey we did," said Gray, "showed us that these people are already in Knoxville and would not be unfriendly to this type of community." In addition to being beneficial to downtown Knoxville, this residential community in turn would further stimulate the specialized retail, dining, and entertainment functions. Moreover, Gray believes that residential units in Second Creek (the former Fair site) would have a spillover effect into lower Fort Sanders, a mixed community of homeowners and college student renters north of The University of Tennessee.

In the last analysis, Knoxville's World Fair was one of a plethora of national World's Fair redevelopment projects which have burgeoned in the past two decades because so many cities face inner-city decay. Its existence has not been a "quick fix" to problems, although economic benefits of the Fair have so far protected Knoxville from recessionary effects that now appear inevitable to many cities. The Fair has had differential effects – downtown businessmen who promoted the Fair have not benefitted to the degree anticipated; the housing problems have left some unpleasant memories. Many Knoxvillians still resent the way the Fair was "sold" to the people of Knoxville.

The Fair was but the latest in a series of efforts to revitalize the downtown and inner city. It has provided a good start, but in the last analysis, people make a city. Knoxvillians should not rest upon their laurels but must keep up the momentum begun by the Fair and strive to make the city a more pleasant place to live and work, and, more important, to continue to foster what will be perhaps the most enduring achievement of the World's Fair – a sense of community.

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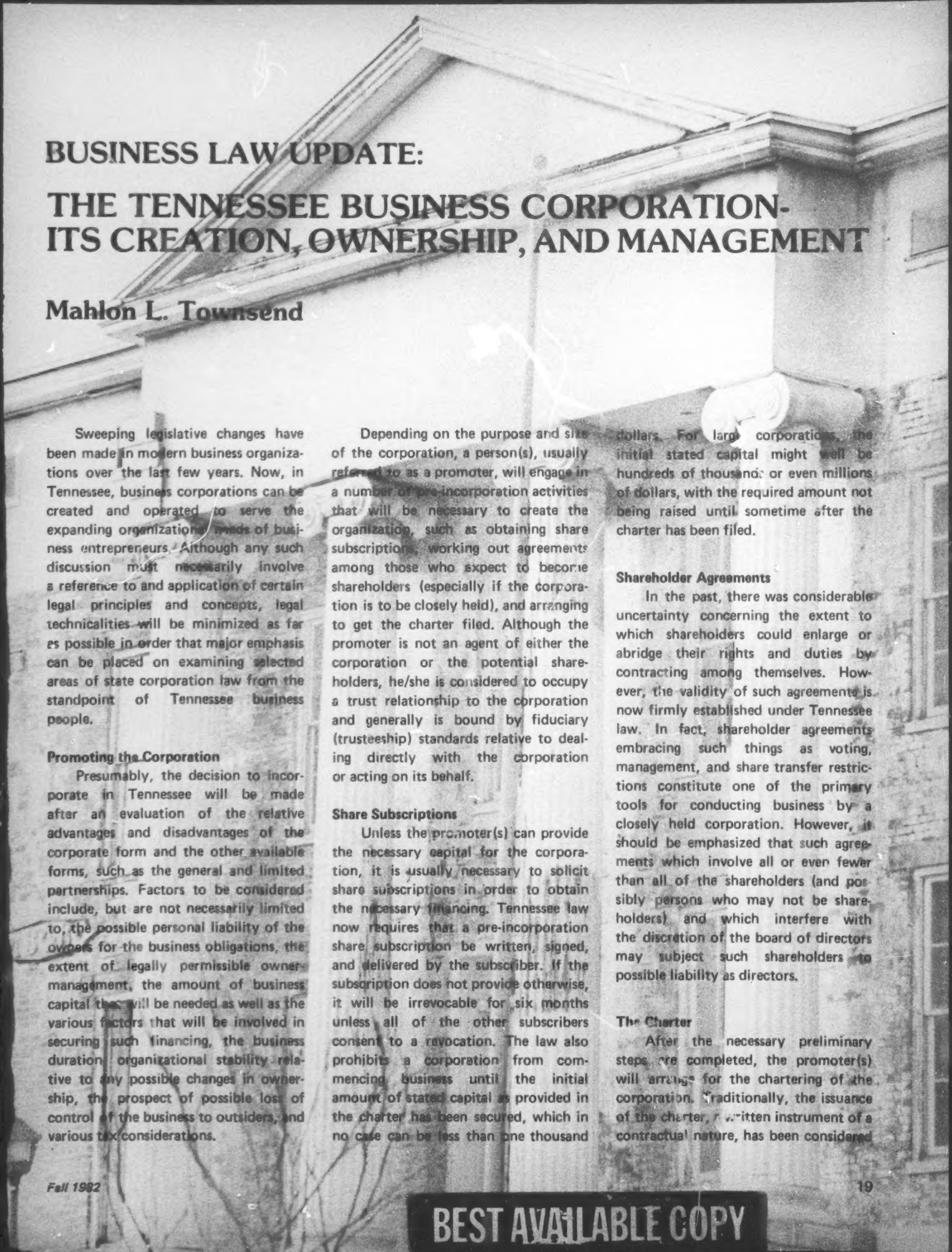

BUSINESS LAW UPDATE:

THE TENNESSEE BUSINESS CORPORATION-ITS CREATION, OWNERSHIP, AND MANAGEMENT

Mahlon L. Townsend

Sweeping legislative changes have been made in modern business organizations over the last few years. Now, in Tennessee, business corporations can be created and operated to serve the expanding organizational needs of business entrepreneurs. Although any such discussion must necessarily involve a reference to and application of certain legal principles and concepts, legal technicalities will be minimized as far as possible in order that major emphasis can be placed on examining selected areas of state corporation law from the standpoint of Tennessee business people.

Promoting the Corporation

Presumably, the decision to incorporate in Tennessee will be made after an evaluation of the relative advantages and disadvantages of the corporate form and the other available forms, such as the general and limited partnerships. Factors to be considered include, but are not necessarily limited to, the possible personal liability of the owners for the business obligations, the extent of legally permissible owner-management, the amount of business capital that will be needed as well as the various factors that will be involved in securing such financing, the business duration, organizational stability relative to any possible changes in ownership, the prospect of possible loss of control of the business to outsiders, and various tax considerations.

Depending on the purpose and size of the corporation, a person(s), usually referred to as a promoter, will engage in a number of pre-incorporation activities that will be necessary to create the organization, such as obtaining share subscriptions, working out agreements among those who expect to become shareholders (especially if the corporation is to be closely held), and arranging to get the charter filed. Although the promoter is not an agent of either the corporation or the potential shareholders, he/she is considered to occupy a trust relationship to the corporation and generally is bound by fiduciary (trusteeship) standards relative to dealing directly with the corporation or acting on its behalf.

Share Subscriptions

Unless the promoter(s) can provide the necessary capital for the corporation, it is usually necessary to solicit share subscriptions in order to obtain the necessary financing. Tennessee law now requires that a pre-incorporation share subscription be written, signed, and delivered by the subscriber. If the subscription does not provide otherwise, it will be irrevocable for six months unless all of the other subscribers consent to a revocation. The law also prohibits a corporation from commencing business until the initial amount of stated capital as provided in the charter has been secured, which in no case can be less than one thousand dollars. For larger corporations, the initial stated capital might well be hundreds of thousands or even millions of dollars, with the required amount not being raised until sometime after the charter has been filed.

Shareholder Agreements

In the past, there was considerable uncertainty concerning the extent to which shareholders could enlarge or abridge their rights and duties by contracting among themselves. However, the validity of such agreements is now firmly established under Tennessee law. In fact, shareholder agreements embracing such things as voting, management, and share transfer restrictions constitute one of the primary tools for conducting business by a closely held corporation. However, it should be emphasized that such agreements which involve all or even fewer than all of the shareholders (and possibly persons who may not be shareholders) and which interfere with the discretion of the board of directors may subject such shareholders to possible liability as directors.

The Charter

After the necessary preliminary steps are completed, the promoter(s) will arrange for the chartering of the corporation. Traditionally, the issuance of the charter, a written instrument of a contractual nature, has been considered

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to be the operative act by which a corporation has been created by the state, as well as the source of powers, express and implied, which the corporation has been permitted to exercise. Any actions taken by a corporation not within the scope of these charter powers often were considered to be either void or voidable as to some or all of the parties involved, depending on the particular situation.

Now, in most states, including Tennessee, the corporation statutes permit existing as well as future corporations to exercise numerous specified powers irrespective of whether or not these powers are enumerated in their charters. Thus, such statutes effectively broaden the outstanding corporate charters and decrease the probability of issues developing concerning unauthorized transactions. Although it is still customary to say that a charter is issued or granted by the state, actually the instrument is executed by the person (usually any attorney) who represents the promoter(s). However, it is not considered to be effective as a charter until it is first filed with the proper state office. This step is known as central filing. Current Tennessee law provides that the corporate existence begins when the charter is so filed as to all persons, except that the state may later proceed to annul or revoke the charter. After central filing and approval, the charter then is required to be recorded locally in the office of the county registrar of the county in which the corporation will have its principal office. However, this local filing does not affect the corporate existence as does the central filing.

Charter Contents

If it is properly executed, a charter will contain certain information that is mandated by statute as well as such additional information that its developers may choose to include. It should be noted that many provisions which formerly were required to be stated in the charter may now be contained in the bylaws. In this respect, owners and managers currently are able to enjoy more power and flexibility in making many decisions than was permitted under the former comprehensive charters.

One of the first charter provisions is the corporate name which must not be the same as or deceptively similar to the name of any existing domestic or domesticated foreign corporation. Specific statutory restrictions relate to names that might be misleading in other respects. The name must include the word "corporated," "incorporated," or "company" or an abbreviation of one of such words, unless the corporation is formed to conduct an insurance, savings and loan, or banking business. Prior to filing the charter, it is possible for the developers to file with the secretary of state an application to reserve a name for a period of ninety days, thus protecting such name from being appropriated for another corporation.

If the corporation is to be chartered for a definite period of time, this intent should be so stated; otherwise, the corporate existence will continue indefinitely and be considered perpetual.

The charter must state the address of the principal office of the corporation in this state and also the county in which such office will be located. Such address will be considered to be the legal address for many purposes, such as keeping the corporate books and records, etc.

If the corporation is to be for profit, this must be so stated in the charter as well as a statement of the purposes for which the corporation is being created. Under current law, a Tennessee corporation can be chartered for any lawful purposes not prohibited or restricted under other laws. Formerly, a charter could not contain more than three nonrelated purposes. Now, however, any number of purposes can be authorized specifically or in general terms.

Profit corporation charters are also required to state the maximum number of both par and no par shares of stock that the corporation will be authorized to issue as well as other specific information concerning the characteristics of such shares. Additionally, specific information concerning any authorized preferred or special shares must be included along with any authority that the board of directors may have in creating and issuing such shares. Finally, a profit corporation charter must contain a statement that it will not commence business until consideration (stated capital) of not less than one thousand dollars has been received for the issuance of shares.

Nonmandatory Charter Provisions

Nonmandatory charter provisions previously mentioned normally will include anything that the incorporators find necessary or desirable for the future conduct of corporate business or control of the relationships between those who will be involved in corporate affairs, including statements relative to the creation and exercise of powers, rights and responsibilities of the corporate officers, directors and shareholders, especially if applicable statutes permit exceptions or qualifications, which they do in many instances. Although it is no longer required that they be stated in the charter, it is still common practice to name the chief corporate officers, together with reference to the size and composition of the board of directors.

The charter must be signed by one or more natural persons, known as incorporator(s), who have the capacity to contract. Such persons are not required to be Tennessee residents, nor are they required to become shareholders. Normally, the promoter(s) will serve in this capacity. Unlike many other states, Tennessee does not permit a corporation to serve as an incorporator, regardless of the extent of its promotional efforts or interests.

When the completed charter is filed with the secretary of state at Nashville,

Mahlon L. Townsend *is Professor of Business Law at The University of Tennessee, Knoxville. A member of the American Business Law Association, the Southeastern Business Law Association, and the Tennessee Bar Association, he has published numerous articles in professional and business publications.*

it must be accompanied by all of the required filing fees. Also, at the same time, there must be filed with the secretary of state the name and address of a registered agent. Such an agent may be either a competent natural person or a domestic or foreign corporation that is qualified to do business in this state. The registered agent is authorized by law to represent the corporation in legal matters, such as receiving service of process, notice, or other demands which are required or permitted by law to be served on the corporation. At all times thereafter the corporation is required to keep on file the designation of such an agent.

Even though the charter has been properly filed and corporate existence has begun, a Tennessee business corporation is expressly prohibited from transacting any business, conducting any corporate affairs, or incurring any indebtedness, except such that may be incidental to its organization or obtaining subscriptions to or payment for its shares, until it has received the amount stated in its charter as being the minimum amount of consideration to be received for its shares.

After its existence has begun, the law provides that an organizational meeting will be held by the incorporator or incorporators for the purpose of transacting any necessary business. They may act in person or take action by written consent without a formal meeting, at least until share subscriptions have been accepted, after which incorporator action by written consent is not permitted.

When so acting at this organizational stage, the incorporators constitute the first board of directors, and they will serve in this capacity until their successors are thereafter duly elected and qualified. Normally, the business that can be expected to be transacted by the incorporators will include such matters as acceptance of the charter (a legal technicality that survives from earlier periods of corporation law), enactment of the initial bylaws, and acceptance of share subscriptions. Although action by written consent by incorporators is not permitted after share subscriptions have been accepted, the subscribers whose subscriptions have been accepted can thereafter conduct subscribers' meetings either in person or by written consent even before there are shareholders of record.

Normally, after the initial organizational stage is completed, the record shareholders will elect the corporate directors who in turn will elect the corporate officers, although at times there may be some variations in this customary procedure.

Financing the Corporation

Traditionally, the concept of a business corporation operating as a legal entity separate and apart from its owners involves the requirement that such owners, as a price for their limited liability for corporate obligations, contribute assets to the corporation and maintain a minimum amount of such assets without impairment for the duration of the corporation's existence. Such assets were formerly known as capital stock, but in Tennessee and in most other states these assets are now called stated capital. As previously indicated, in Tennessee the stated capital must be at least one thousand dollars. It is normally obtained by issuing shares to subscribers or capitalizing some of the surplus into share (stock) dividends.

Shares

Tennessee law is very liberal in permitting the issuance of any recognized kind of corporate shares. Depending on any applicable charter or bylaw provision, shares may be par or no par, voting or nonvoting, and common or preferred, which can be either cumulative or noncumulative as to dividends. Division into classes or series is also permitted. However, irrespective of the kinds of shares a corporation issues, one or more classes in the singular or the aggregate must have full voting rights, full dividend rights, and full liquidation rights. To become a shareholder, one must be issued a certificate only after the full consideration has been received by the corporation in the form of money, property, or labor or services actually received by or performed for the corporation or for its benefit in its formation or reorganization or a combination thereof. Although the directors will determine the issue price of both par and no par shares, the issue price of par shares cannot be less than the par value.

When par shares are issued, all of the consideration received up to par value will constitute stated capital, but any excess that may be paid in can be credited to capital surplus. In the event no par shares are issued, all of the consideration received will constitute stated capital unless, before such shares are issued or within 60 days thereafter, the directors allocate a portion, but not all of the consideration paid to capital surplus. The portion not so allocated will constitute stated capital.

Ownership

As owners of their corporation, shareholders are not considered to be agents and thus have no authority in their shareholder role to represent it in dealing with outsiders. Furthermore, they are not considered to occupy any fiduciary relationship to the corporation and thus can compete or deal directly with it as strangers. Only time will tell if decisional law will be significantly modified in this respect as courts decide cases involving shareholder-corporation relationships under modern statutes, especially in litigation stemming from closely-held corporation situations.

Management Rights

Traditionally, it has been a basic legal concept that shareholders as such had no legal authority to manage their corporation directly. The separation of ownership and management was another price they paid for benefits of corporate operation. In corporations that are owned by a larger number of constantly changing shareholders, the impracticability of direct owner management is obvious. However, even in smaller corporations, courts have been hesitant to permit any appreciable amount of shareholder management over corporate affairs, lest such corporations become

At present, a shareholder, by written demand which states the purposes, has the right to inspect the books and records of the account as well as the minutes and shareholder records. . . .

the alter ego of their owners and thus become an avenue for possible mismanagement to the prejudice of creditors and minority shareholders. Yet here also there have long existed deviations from the norm, and modern statutes have modified the principle considerably, especially with respect to closely held corporations whose owners often expect to enjoy many of the management rights and duties that are permitted in nonincorporated business associations, such as general partnerships.

Admitting that direct corporate management by shareholders is accompanied by possible risk of personal liability for corporate obligations, it has long been the practice of some shareholders to manage their companies with or without separate directors or officers, notably in small, closely held corporations, even in the face of express statutory or charter provisions designed to prevent this very thing. Sometimes such management was exercised from the moment of incorporation, while in other situations dominant shareholders either maneuvered themselves into control or were forced to assume power because of compelling circumstances.

Depending on the number of shareholders, another way in which all or part of them participate in management is by serving as directors and/or company officials. Tennessee law does not require directors to be shareholders, nor does it prohibit them from serving in these other capacities, and frequently controlling shareholders effectively fill management roles in this manner.

In addition to the direct management practices discussed above, shareholders also indirectly control management activities in several other ways, such as enacting or repealing bylaws and electing or removing directors. Present Tennessee law provides that the initial bylaws will be adopted by the incorporator(s) at the organizational meeting. Subsequently, bylaws will be adopted, amended, or repealed by the shareholders unless this power is given to the board of directors either by the charter or the shareholders themselves. However, any bylaw so adopted by the directors is subject to amendment or repeal by the shareholders.

Tennessee law provides that the directors of a corporation will be elected by the shareholders at the annual meetings for terms not to exceed three years. Thereafter, unless the charter or bylaws provide otherwise, vacancies which occur on the board for any reason except removal of a director may be filled by the remaining directors. Shareholders have the power of removal for cause or without cause, and any vacancy so resulting will be filled by such shareholders. Obviously, to the extent that the shareholders elect and remove directors, this power provides a very effective means by which they can influence management decisions. Additional indirect controls are exercised when shareholders vote on such things as charter amendments, reorganizations, mergers, and dissolution.

Shareholder Voting

Currently, shareholders of a Tennessee corporation who are entitled to vote can do so in several ways. They may vote their shares in person at any regular or called meeting at which the required quorum is present or they may vote by proxy, which is a very common practice in large corporations. Under present law, a proxy must be in writing and signed by the shareholder or his/her agent, and it will be invalid after the expiration of eleven months unless the proxy itself states a different time for its expiration.

A recently enacted statute in this state also authorizes a shareholder to vote by written consent without a meeting, provided the written consent sets forth the action so taken and is signed by all of the persons or parties entitled to vote on the matter. Furthermore, anyone so entitled to vote by written consent without a meeting can also do the same by proxy.

By agreement, shareholders can create a voting trust by transferring their voting shares to a trustee or board of trustees for a period not to exceed ten years. Such a voting trust is not characteristic of normal corporate operations. Finally, the shareholder voting agreement, previously mentioned, by which shareholders can bind themselves to vote or not vote as they shall agree, or as will be determined according to some procedure to which they have agreed, can now be an effective tool by which voting rights can be exercised.

Inspection Rights

Most states, including Tennessee, have made significant changes relative to the rights of shareholders to inspect the corporate records. At present, a shareholder, by written demand which states the purposes, has the right to inspect the books and records of account as well as the minutes and shareholder records at any reasonable time and place, provided such person is a shareholder of record of at least 5 percent of the outstanding shares and has been such for at least six months preceding the demand. However, upon showing a proper purpose, a court of equity has the power to compel the corporation to permit inspection of its records, irrespective of the time a person has been a shareholder or the amount of shares that are owned.

In the event that a deadlock occurs in a board that has an even number of directors, a court is authorized to appoint a provisional director to serve until the deadlock is broken or he/she is removed either by court order or by vote of the holders of a majority of the voting shares. Such director may be appointed if a suit is filed by one-half the directors or by holders of not fewer than one-third of the outstanding shares. The provisional director must be a disinterested person who is not a shareholder or creditor of the corporation and is not closely related to the other directors.

Although the recent revision of corporation statutes has created a more favorable legal environment in which directors can employ modern management principles, both statutory and decisional law continue to recognize so many situations in which directors may be personally liable to the corporation for improper conduct that a person should not seek or accept a directorship unless he/she is able and willing to devote whatever time and effort the position may require.

Directors and Officers

Subject to the varying degrees in which shareholders either directly or indirectly manage or control their corporation, as previously discussed, management responsibilities are primarily discharged by the directors and officers, all of whom are fiduciaries to the corporation. Tennessee law provides that the corporate business or affairs shall be managed by a board of directors, each of whom must be of legal age. There must be a minimum of at least three directors unless all of the shares are owned of record by fewer than three shareholders, in which case the number of directors need not exceed the number of record shareholders. Their terms of office cannot exceed three years, and they must be elected by a plurality of votes unless the charter provides otherwise, such as permitting election by cumulative voting. By statute, directors (and officers) are required to perform their duties in good faith with the degree of diligence, care, and skill which prudent persons ordinarily would exercise in similar positions.

Directors normally exercise their voting powers at either regular or special meetings which may be held within or outside the state. Although they are not allowed to vote by proxy, all of them can take action by written consent without holding a meeting, provided the charter or bylaws specifically permit this to be done. Additionally, unless the charter or bylaws provide otherwise, Tennessee directors are now permitted to participate in a board or committee meeting by means of a conference telephone arrangement which allows all persons participating in such a meeting to hear each other. This type of action will constitute personal presence of such person(s) at a meeting.

Officers

Although it is customary for a business corporation to have several officers, such as president, one or more vice-presidents, secretary, treasurer, and chief executive officer, current Tennessee law requires only that there be a president and a secretary, but allows such other officers as may be considered necessary. The other officers will be designated by titles provided by the charter, bylaws, or the directors. One person can hold any two or more offices at the same time except the offices of secretary and president. Subject to any contrary charter or bylaw provisions, officers are appointed by the directors for terms not to exceed two years. They have such express authority and responsibility to perform their managerial duties as may be set out in the bylaws or given by the board of directors.

Conclusion

Tennessee lawmakers have done a remarkable job in revising the corporation statutes. Not only has the process of incorporation been simplified, but the corporate form of organization now is permitted to have great flexibility and can be satisfactorily utilized for most business operations. The respective roles of incorporators, shareholders, directors, and officers have been more clearly defined, and many of the technicalities and uncertainties that previously existed have been either eliminated or clarified. ■

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College of Business Administration

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WINTER 1983

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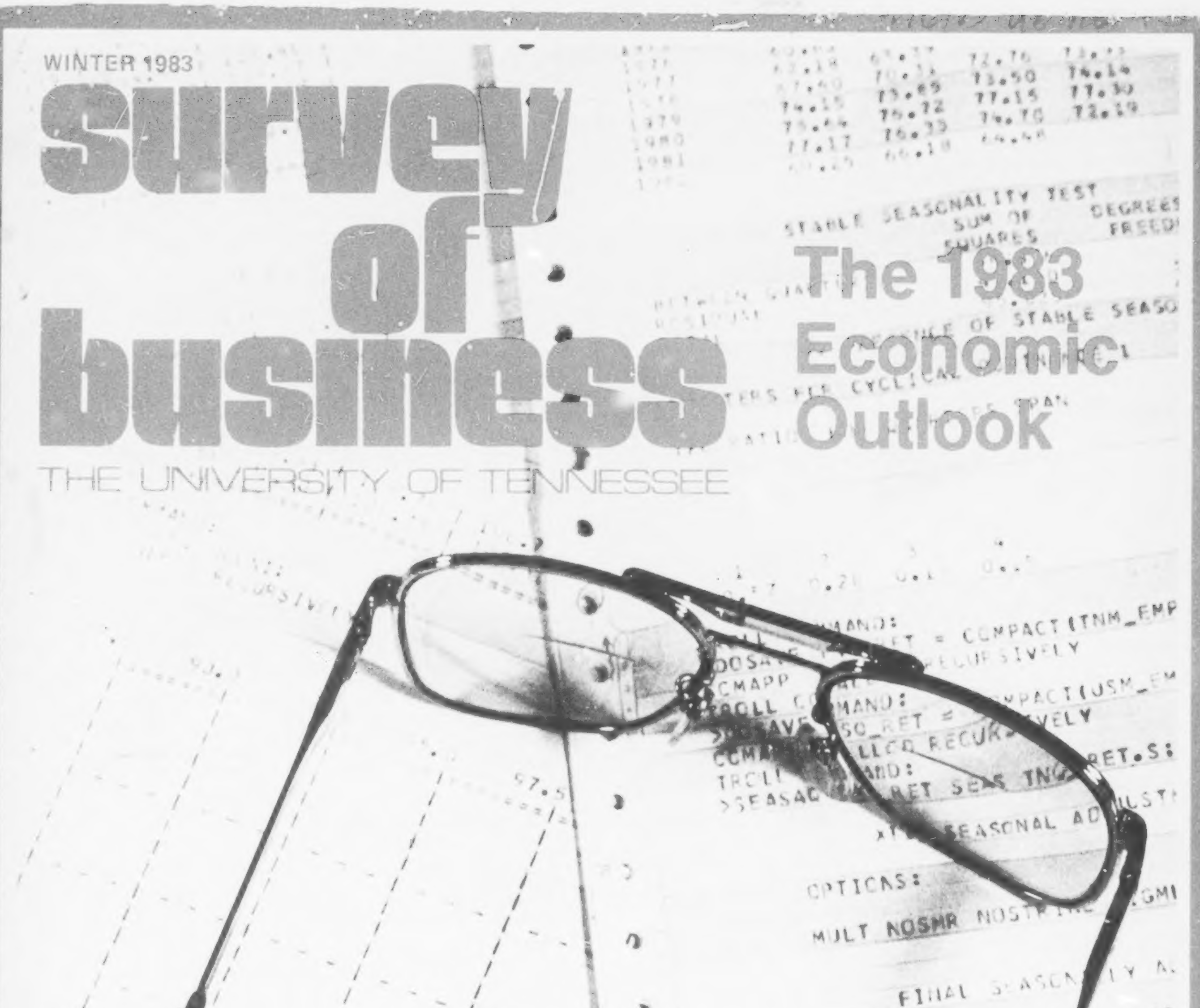
The 1983 Economic Outlook



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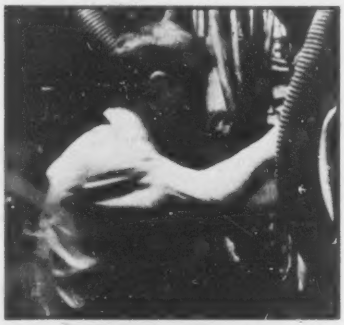
Looking Ahead: Economic Survey for 1983

Richard A. Hofler
Patricia D. Postma



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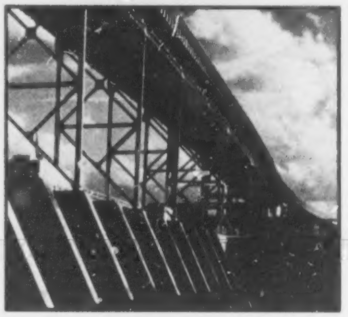
Economic Outlook for Tennessee and the Nation

Niles C. Schoening



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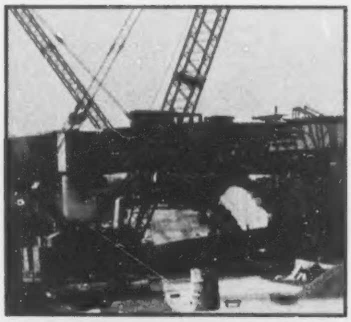
Outlook for Specific Industries

Richard A. Hofler
John W. Mayo
Patricia D. Postma
Niles C. Schoening
Irving Dubov (Edited by John W. Mayo)



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Revised Tennessee Net Migration Estimates: 1970-1980

Jan C. Jacobsen
Donald W. Hastings

Editor's Note: Because of the recent impoundment of state funds and the resulting internal budget constraints, the Spring 1983 (Vol. 18, No. 4) issue of the *Survey of Business* will not be published.

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Director's Comments

The first article of the annual Outlook issue of the **Survey** summarizes the individual judgments of 160 Tennessee businessmen and women who comprise this year's Outlook Panel. Panelists for 1983 are listed on page 4. Among this year's highlights are the following: panel expectations for unemployment and what can (or cannot) be done in Tennessee to bring it down; panel forecasts on length of the average work week; and panel identification of the top five economic issues facing Tennessee in 1983. Many panelists' comments are included throughout the article to illustrate and enrich the presentation. Patricia Postma and Richard Hofler developed the questionnaire and the analysis and presentation of panelists' responses.

In "Economic Outlook for Tennessee and the Nation," author Niles Schoening reviews the overall forecast for the nation and state as developed by the staff of the Center for Business and Economic Research and reported in detail in the 1983 *Economic Report to the Governor.*[*] The forecast is developed using the Tennessee Econometric Model maintained at the Center for Business and Economic Research and contains annual forecast data from 1982 through 1991. The main assumptions which underlie the national and Tennessee forecast are described. Selected forecast variables are reported here and in the third article, " Outlook for Specific Industries," in which John Mayo abstracts the sectoral forecast detail. Specific forecast and analysis are included for manufacturing, construction, services, trade, energy, government and agriculture.

The concluding article provides an update to "Tennessee Net Migration Estimates" by Don Hastings and Jan Jacobsen, which appeared in the Fall 1982 issue of the **Survey**. These data were recomputed, based on recent communication of relatively substantial upward adjustments in 1970 Tennessee population by the U.S. Bureau of the Census, correcting for the 1970 Census undercount. Accordingly, the original authors' revised estimates of net in-migration from 1970 to 1980 are given by age and sex for each of Tennessee's Development Districts. These data supercede those previously published in the Fall of 1982.

David A. Hake

David A. Hake, Director
Center for Business and Economic Research

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[*] *For more details on both the state and national economic outlook and the outlook for specific state industries, see* **An Economic Report to the Governor on the State's Economic Outlook**, *January 1983, prepared by the Center for Business and Economic Research and published by the Tennessee State Planning Office, Nashville. Authors from the Center include Kenneth E. Quindry, Research Professor and Professor of Economics; Patricia A. Price, Research Associate; Richard A. Hofler, Research Assistant Professor and Assistant Professor of Economics; John W. Mayo, Research Assistant Professor and Assistant Professor of Economics; Patricia D. Postma, Research Assistant Professor; and Niles C. Schoening, Research Associate. Irving Dubov, Professor of Agricultural Economics at The University of Tennessee, Knoxville, wrote the agriculture sector.*

PANELISTS FOR THE 1983 SURVEY OF BUSINESS ATTITUDES

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Charles Bell, Manager, Employee Relations, Allied Chemical Corporation, Knoxville
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Donald E. Cash, Employee Relations Supt., E.I. DuPont de Nemours and Co., Memphis
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Buford Goldstein, President, Hampton Print Works, Inc., Johnson City
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* **William C. Grater**, President and General Manager, Bowater Southern Paper Company, Calhoun
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William M. Hepburn, Vice President-Finance, Beecham Laboratories, Bristol
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Paul Koger, Deputy Commissioner, Ellington Agricultural Center, Nashville
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Eldon Leslie, Executive Secretary, Industrial Development Board, Cookeville
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* **John E. Procter**, President and Publisher, The United Methodist Publishing House, Nashville
Allan G. Pulsipher, Chief Economist, Tennessee Valley Authority, Knoxville
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Richard H. Remmert, Executive Director, United Way of Greater Memphis, Memphis
James L. Rippy, Sr., Executive Director, Obion County Chamber of Commerce, Union City
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Leonard J. Stack, Vice President Operations, Emerson Electric Company, Paris
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Thomas E. Sudman, President, United American Services Group, Knoxville
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* **J. R. Thompson**, Vice President/Finance, TPI Corporation, Johnson City
Julian P. Townsend, President, Townsend Supply Company, Jackson
John Townsend, Vice-President, Tennessee Textiles, Jackson
Earl H. Triplett, President, Memphis Trust Company, Memphis
* **Carl W. Truebe**, Plant Manager, ICI Americas, Inc., Chattanooga
Richard E. Tumblin, Chartered Life Underwriter, The Equitable Life Assurance Society, Knoxville
J. R. Turner, Manager of External Affairs, Buckeye Cellulose Corporation, Memphis
* **John M. Upchurch**, Appraiser and Land Surveyor, Commercial Bank and Trust Company, Paris
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Jim Woods, Executive Vice President, Carter County Chamber of Commerce, Elizabethton
† **John P. Wright**, President, American National Bank and Trust Company (Ancorp Bankshares), Chattanooga
Tom Yount, Investments and Business Consulting, Oak Ridge
* **Allen Zang**, President, Nashville Bridge Company, Nashville

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* These panelists have served five or more years since the first Economic Outlook edition.
† These panelists have served ten or more years since the first Economic Outlook edition.

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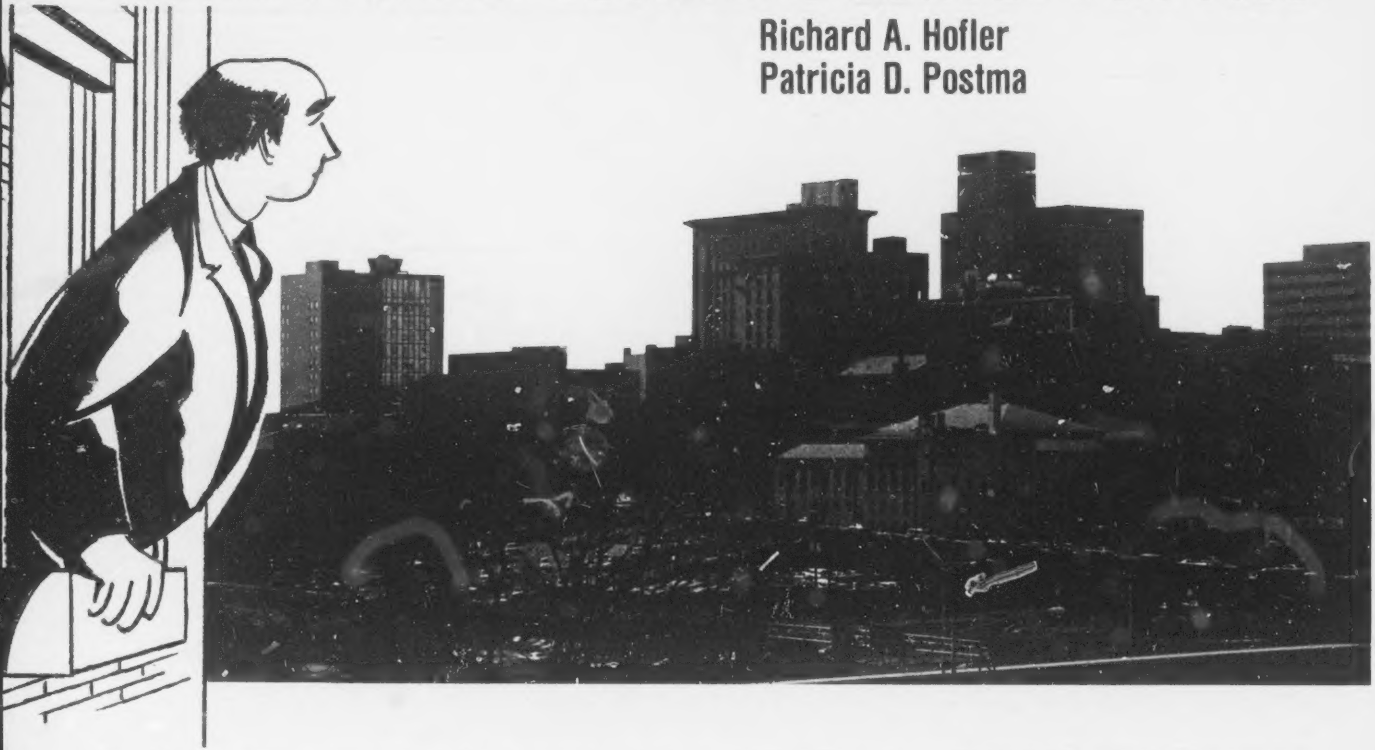
LOOKING AHEAD: ECONOMIC SURVEY FOR 1983

Richard A. Hofler
Patricia D. Postma



The 160 businessmen and women from West, Middle, and East Tennessee who responded to our 14th Outlook Survey constitute the largest panel in the survey's history. Panelists made their comments about the state's economic outlook at the conclusion of a troubled year. Nationally, 1982 had seen one of the severest recessions since World War II, with over 12 million Americans out of work, ongoing debate about fiscal policy and the size of the federal deficit, and stubbornly high real interest rates. Yet inflation appears to have significantly decreased, and by year's end there were occasional signs that the depths of the recession may have been reached. Panelists' views about the coming year, as well as about the year just passed, may be summarized by the following comments.

• 1983 SHOULD BE BETTER THAN 1982, ALTHOUGH NO ONE EXPECTS A BIG YEAR.

Over 70 percent of the panelists believe that the national economy will be better than it was in 1982, and 66 percent believe the state economy will be better than in 1982. An East Tennessee banker believes the state's underlying strengths provide the basis for an upturn:

"I believe we will be better off economically in 1983 than we were in 1982. Interest rates are declining and inflation is abating. While unemployment is high, our economy is not dominated by one industry. Tennessee continues to be an attractive state for those who live in the North and Northeast. A majority of our work force is non-unionized, and we have good sources of energy. High interest rates have severely damaged the housing industry. This will improve as interest rates continue to decline and if they stabilize at some reasonable level."

But another East Tennessee banker is among those who view the characteristics of the state less optimistically:

"Tennessee is still too dependent on basic manufacturing industries. Recovery here will be slow and will not achieve former highs . . . . We must make some basic changes in our economic structure. This is a five-to-ten-year project."

• UNEMPLOYMENT WILL BE THE BIGGEST PROBLEM IN 1983.

Although over 60 percent of the panelists believe that unemployment rates will fall slightly, a majority sees this as our most severe problem. A member of the trade sector from West Tennessee states:

"Tennessee needs to extend all efforts to lessen unemployment, either through attracting more industry, or by creating tax and other incentives for capital investment. If this is not done, the effects of high unemployment will exact a terrible toll on the Tennessee economy."

• THE CURRENT RECESSION HAS BEEN MORE SEVERE THAN EARLIER ONES; NEVERTHELESS, THE STATE GOVERNMENT SHOULD NOT ATTEMPT TO DEVISE SHORT- OR LONG-TERM COUNTERCYCLICAL POLICIES.

Over 85 percent of the panel responded that the effects of this recession are either slightly worse or much worse than those of the recession in 1974-75. Many of our panelists made comments like this one from a Middle Tennessee manufacturer:

"We have had to tighten our belts. We use part-time labor instead of full-time, cut all frills, donations, etc." Although three-fourths of the panel says that the state should not devise countercyclical measures during a recession, only 55 percent say the state should not attempt to devise measures which might make future recessions less severe.

A Middle Tennessee businessman says, **"Jobs for the unemployed are essential, but I doubt if the state can have a real impact on the problem."**

A West Tennessee manufacturer is in favor of countercyclical measures, but he, too, has reservations: **"The problem is — when [should they be instituted]? And a recession program once started may be difficult to stop."**

● NEW INITIATIVES MAY BE NEEDED FOR THE FUTURE.

A number of the panelists commented that the state may need to adopt new strategies to mitigate future economic hardships. Prominently mentioned were tax restructuring, especially a state income tax, and persistent and aggressive pursuit of high technology industries. An East Tennessee wholesaler said simply: **"The lack of an income tax will continue to weaken the state economy."** Another East Tennessee distributor believes:

"The key to our future growth is an ability to attract high-technology industries to our state. This is where the growth is, and we in Tennessee must share in it."

But a Middle Tennessean sees a problem in doing that:

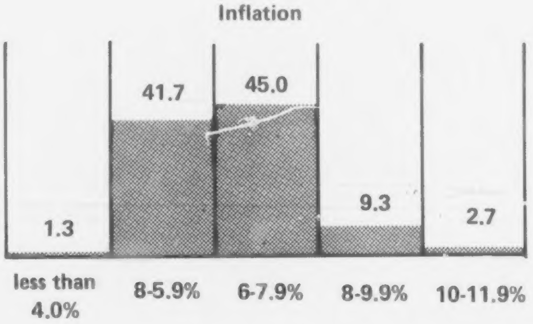
"Our people are really not of a high enough skill level to handle the long-term 'new industry,' i.e., computational areas, automation and all of the so-called high-tech arenas. We face a major skills upgrade."

The Outlook for 1983

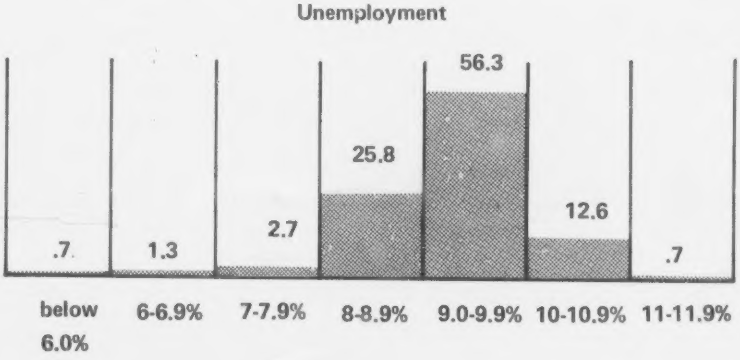
Many panelists agree with an executive of a gas company who feels that **"the economy of Tennessee will rebound as the national economy moves ahead."** It is interesting to note that 83 percent of the panel predicts that the U.S. economy will improve somewhat during the coming year. The panel's expectations for inflation and unemployment at the national level are shown in Figure 1. Those surveyed were evenly divided on whether the consumer price index increase would be in the range of 4.0 to 5.9 percent, or between 6.0 to 7.9 percent. A majority of the panelists agreed that national unemployment rates will drop to a range of 9.0 to 9.9 percent during 1983.

Predictions for the state economy mirror those of the nation. The majority (over 82 percent) of the panelists from every geographic area and every eco-

Panelists expect the U.S. inflation rate to rise slightly and U.S. unemployment to fall in 1983.



They believe that the stronger U.S. economy will lead the Tennessee economy in 1983.



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Richard A. Hofler, Research Assistant Professor at the Center for Business and Economic Research, and Assistant Professor of Economics, The University of Tennessee, Knoxville, has published in the areas of econometrics and microeconomics.

Patricia D. Postma is a Research Assistant Professor at the Center for Business and Economic Research, The University of Tennessee, Knoxville. She is editor of the **1980 Tennessee Statistical Abstract** and Data Processing Director for the Tennessee State Data Center.

nomic sector — manufacturing, finance, trade, and "other" (including construction, real estate, law, development officials, and other professionals) — expect slight improvement in the state economy in the year ahead. Over 60 percent of the panel members feel that the state's unemployment will be down slightly, and over 62 percent predict that prices will rise slightly.

Several predictions about specific issues serve to illustrate that optimism is guarded. For example, businessmen frequently respond to improving economic conditions by lengthening the average work week of their employees before hiring new workers. However, nearly 70 percent of the panelists predict that the employees' average work week in their places of business will be unchanged by about the middle of 1983. Only in the manufacturing sector do a large proportion of respondents (29 percent) expect average work weeks to be longer. In addition, of the 80 panelists who reduced work forces during the recession, only 16 expect to rehire a significant number of workers in the next 6 months, and 34 do not expect to restore previous levels at all. Another measure of the state's economic health dampens the optimism of some of the panelists. The phenomenon of business costs rising faster than revenues has been ranked consistently among the top three problems in the state during the past five years. Although it is not considered a serious problem this year, 32 percent of the panelists see no improvement over 1982, and 33 percent predict a slight tightening of the squeeze.

With respect to energy, the "good news" is that nearly 90 percent of the panel feels that energy supplies will either equal or exceed 1982's stocks. The "bad news" is that over 78 percent of the panelists predict a slight or moderate rise in the cost of that energy.

As panelists respond to the section of the questionnaire that measures expectations for these specific aspects of the state's economy, they are asked to forecast the year ahead compared with the year just passed. Last year's panel believed that improvements would occur in 1982 compared to 1981, but 1982 proved to be disappointing, confounding the expectations of forecasters everywhere.

Although improvement is again predicted for most areas of the economy, the panelists are certainly not any more optimistic than last year. In view of the unusual aspects of this recession — its unusually long duration, its unprecedented unemployment rates, and its persistently high real interest rates — it is not surprising that our panel indicates a conservative kind of optimism for most specific areas. The one exception to the similarity of outlook is the level of residential construction activity: 92 percent of this year's panel expects residential construction to be up, compared to 48 percent of last year's panel.

Key Economic Issues

Each year the panelists are asked to rank the five most critical economic issues facing Tennessee in the year ahead. Those selections have been remarkably consistent in recent years, though there have been shifts in the rankings as conditions have changed. Figure 2 shows the six issues ranked most critical for 1983.

Last year, panelists rated unemployment as the second most urgent problem, but this year, for the first time, unemployment is ranked as the most critical problem facing the state. This concern is undoubtedly heightened by the realization that Tennessee's unemployment rate exceeds that of the nation — an unusual circumstance for the state.

Panelists understand the difficulty of stimulating an economy when unemployment — or fear of unemployment — is high. One West Tennessean agrees with President Reagan about the effectiveness of proposed government remedies:

> **"The continuing high unemployment rate in Tennessee, particularly among construction trades and minority workers, will further prevent an immediate rebound, notwithstanding any national or state 'make-jobs' programs which would have no immediate impact and very little long-range effect on unemployment rates."**

Four of the past five years have seen interest rates ranked as the primary concern and these are ranked second for 1983. This persistent prominence reflects the fact that interest rates affect nearly every business through capital investment needs, inventory maintenance, or consumer purchases. The year-end fall in interest rates has apparently stimulated new construction activity. According to a Middle Tennessee building supply executive, **"The residential housing market, for which we furnish materials, is already much improved."** An East Tennessee manufacturer emphasizes the widespread employment impact of interest rates when he says, **"If interest rates continue to decrease, the flow of money (short-term and long-term borrowing) will increase and more laid-off workers will be recalled to work."**

Two of this year's major concerns have rarely appeared before in the top five concerns of the panelists: inadequate consumer demand and underutilization of plant capacity. The nearly equal weight given to these two problems is not surprising, since each is actually a manifestation of the recession's impact on different sides of the business. Over 58 percent of our panel predicts that both utilization of plant capacity and consumer demand will rise only slightly in 1983. This limited optimism, together with their high ranking, suggests that our panel feels that both still will have a long way to go before levels approaching normality are achieved. Plant capacity is a measure generally most meaningful in relation to manu-

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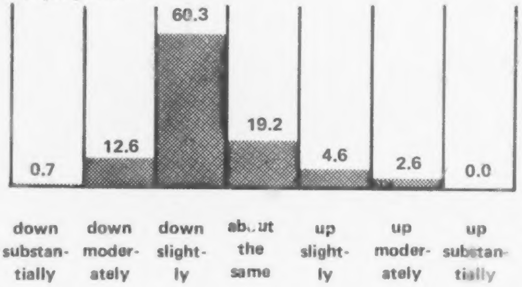
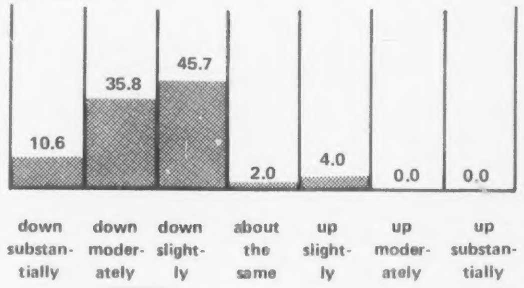
KEY ECONOMIC ISSUES IN 1983

Our panelists overwhelmingly identified the levels of unemployment and interest rates as most critical problems for the year ahead even though both are expected to decline.

1. Unemployment

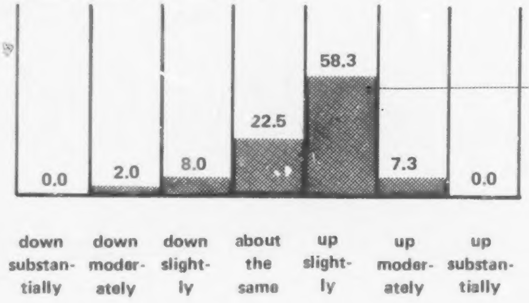


2. Interest Rates

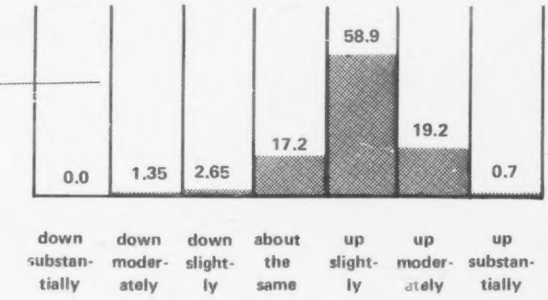


Far fewer panelists concurred on the seriousness of these issues ranked next most cricital.

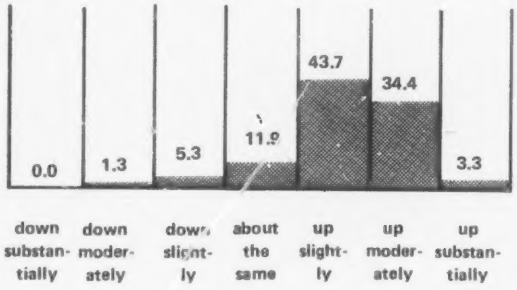
3. Utilization of Plant Capacity



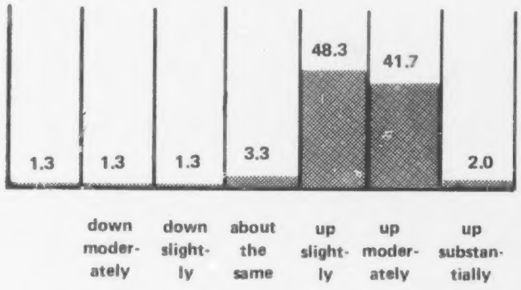
4. Inadequate Consumer Demand



5. Energy Costs



6. Levels of Residential Construction



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facturing, but an East Tennessee banker notes that it applies to other sectors as well, through its indirect effects:

"The consumer spending for nondurables will be stronger than that for durables, and this will contribute to Tennessee's continued economic problems. I do not expect service industries to be strong due to high unemployment. People do not have the money to purchase services . . . ."

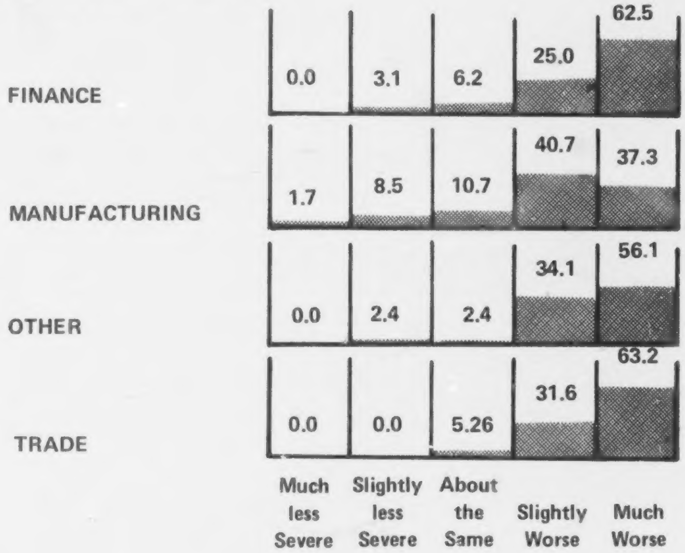
During the past five years the problem of energy costs has steadily declined in the panels' rankings. For the 1980 Outlook Panel, energy cost was a prime concern; this year's panel ranks energy costs as fifth most important. U.S. energy costs rose 1.3 percent in 1982, and a majority of our panel foresees similar slight or moderate increases in 1983. The problem has not disappeared, however, as its continued appearance among the most critical problems indicates. A West Tennessee plant manager speaks for many on the panel when he notes that, despite these relatively slow cost increases, **"Increased energy costs are a severe problem for some and a cause of concern for all."**

The Effects of the Current Recession

The manufacturer citing belt-tightening measures was typical of most of our respondents, regardless of their businesses or locations. Eighty-five percent of our panelists regard the present recession as more severe than that of 1974-75, and 70.6 percent have experienced business declines since pre-recession years of the late 1970's (see Figure 3). Belt-tightening takes a number of forms, and often the need to contract in the face of decreased business activity leads to changes in methods of operations which become permanent and, in some cases, a long-term advantage. Our panelists' responses to a question about recession-induced changes in operation ran the gamut from the East Tennessee manufacturer who closed two plants to the state government official who said, **"We have had to work harder, smarter, and be innovative — more aggressive selling and marketing."**

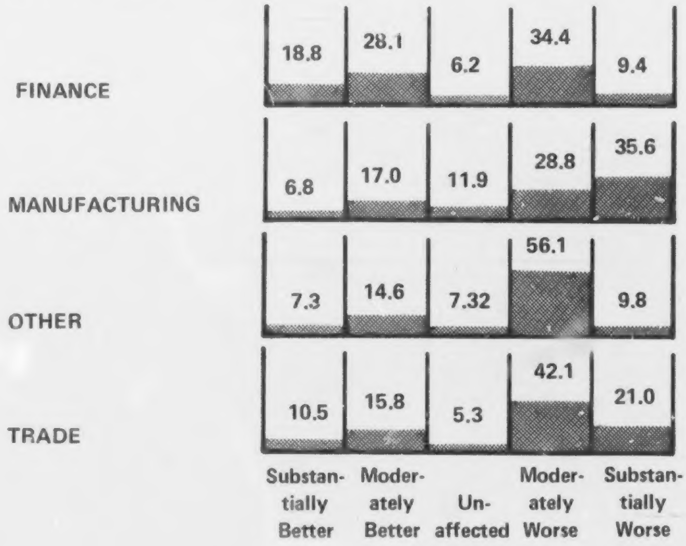
3

A. Panelists in three sectors feel the effects of the present recession are much worse than the recession of 1974-75. . .



But many manufacturers feel it is only slightly worse.

B. Despite its severity more than one-fifth of respondents in every sector have experienced levels of business activity better than prerecession levels.



"We can't return to the same mix of economic activity; energy costs and new technology have made many old jobs obsolete. We have to create not only more jobs, but new kinds of jobs."

The form cutbacks have taken depends, of course, on the type of business. These comments are typical of those received and illustrative of the many individual decisions that underlie the state's high rate of unemployment:

"We are using more volunteers to do our work, are reconciling budgets monthly and have reduced staff and supply purchases to an absolute minimum."

Middle Tennessee development official

"We have cut back production workers and inventory – 90-day delivery has been moved to 150-day delivery. Our new engineering developments are running six months behind the schedules set one year ago."

East Tennessee manufacturer

"Reduced personnel by 30 percent, reduced delivery fleet by two trucks, no across-the-board wage increases for two years, began staying open all day on Saturday using salaried personnel."

Middle Tennessee construction executive

Some changes made as a result of this recession will be permanent ones, and businesses like the one cited above hope they will permanently improve profitability or markets. Typical of several in a variety of sectors is a move toward automation:

"[We have undertaken] large capital spending to modernize, incorporating much automation to eliminate rising, non-competitive labor costs. U.S. industry is just not competitive with Japanese, Mexican and European labor rates."

Middle Tennessee manufacturer

Seeking new markets has led some state companies abroad:

"We are now much more international in our business base because of the decline in USA opportunities. This change has markedly altered our method of operations toward international projects."

Middle Tennessee engineering executive

It is clear that panelists who have had to make these changes are fully aware of hardships, not only to businesses, but to the individuals who have been laid off. Nonetheless, 75 percent of them feel there are too many pitfalls preventing state government measures taken during a recession from doing what they are intended to do. There were many different opinions as to what the difficulties are. An East Tennessee distributor doubts the possibility of an objective program:

"How can a government that can't control truck lobbies, sign lobbies, or even the honesty of its own leadership, hope to cope with countercyclical measures?"

Some, like the East Tennessee insuror who says, **"I have difficulty believing that you can spend yourself out of debt,"** object on theoretical grounds. More of the panel – 42 percent – believe long-term countercyclical measures are reasonable (see Figure 4).

An executive of a West Tennessee community organization recognizes the indirect benefits of such a program:

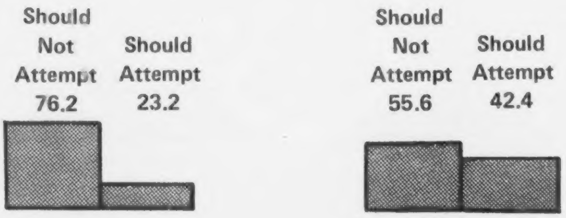
"While I believe the real benefit of such programs would be more perceived than real, I also believe such a perception could be a useful tool in addressing the psychology of a recession."

Providing job training programs that equip the state's workers with more marketable skills and concentrating industrial recruiting on recession-insensitive industries were the two options for ameliorating long-term cycles most favored by panelists.

An East Tennessee executive says, **"Our state's industries presently are too cyclical. High-tech industries have bucked the trend nationally. We should try hardest here."** More than half of those favoring long-term measures made comments or suggestions on approaches that could be taken. Coupled with other panelists' comments on Tennessee's economic strengths and weaknesses, a strong feeling emerged that we may have to do something differently.

4

76 percent of the panelists believe the state government should not attempt countercyclical (short-term) measures during recessions



and 56 percent believe state government should not attempt to design countercyclical (long-term) measures to lessen future recessions.

New Initiatives

Certainly the most provocative statement about Tennessee's weaknesses was made by an East Tennessee manufacturer:

"The state of Tennessee is not a desirable place to live. It is ranked one of the poorest in education standards. It is generally thought of as a poor labor market. I really don't see anything happening which would result in the overall economy in Tennessee improving."

Clearly most panelists do not feel as pessimistic, though they recognize a variety of problems. The most common suggestions involve tax restructuring and continued recruitment of high technology industries.

The panel's views on taxes vary widely. An executive in a West Tennessee plant states, **"We must do something about state funding. A revised tax structure is needed if essential services are to be provided."**

A Middle Tennessee manufacturer believes **"with high unemployment and decreased revenues in taxes, the state will have to initiate programs (new taxes) to make up loss of revenues."** In a similar vein, the chairman of an East Tennessee wholesaling firm asserts that **"Tennessee's investment in education is one pathetic result [of no state income tax]. Without quality education available, the whole structure will wither in time and enlightened industry will stay away."**

The recent high visibility of the Silicon Valley industries and the creation of our own Tennessee Technology Foundation may have generated the panel's numerous comments encouraging the continued pursuit of such firms. The president of a Middle Tennessee utility speaks for many when he says that **"we need to continue such efforts to attract high-tech industries. The proposed research park near Oak Ridge is an excellent idea."**

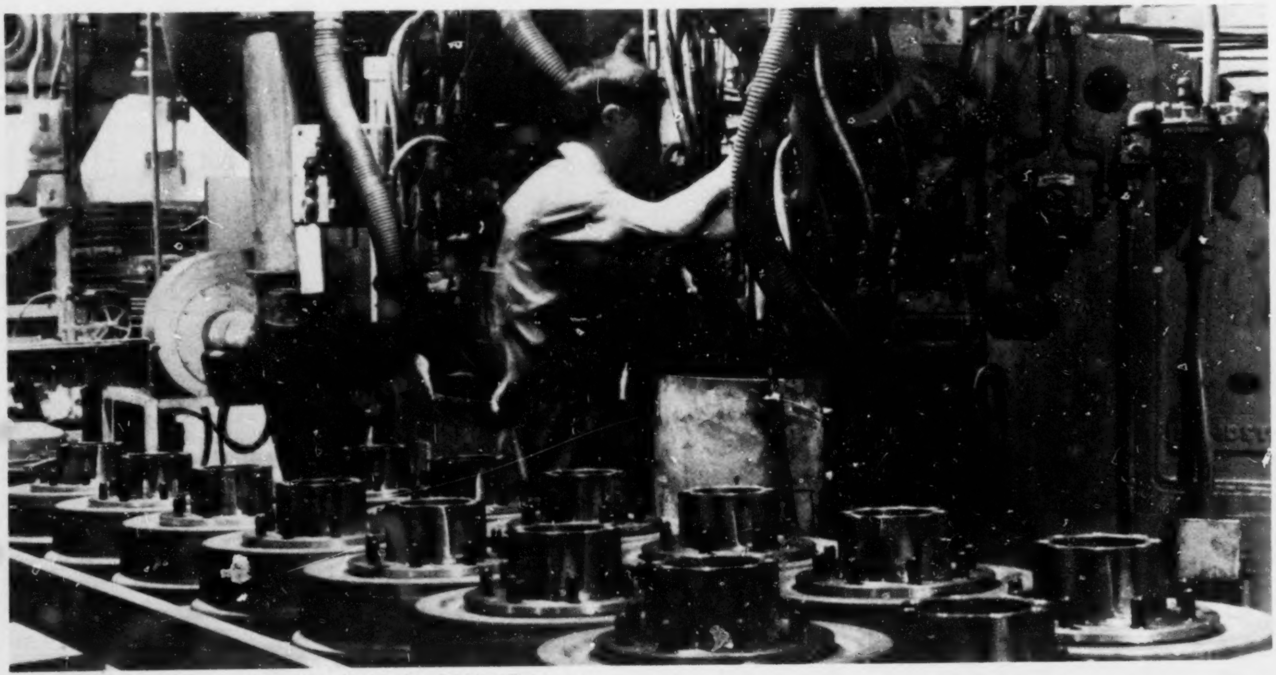
An East Tennessee banker says: **"We can't return to the same mix of economic activity; energy costs and new technology have made many old jobs obsolete. We have to create not only more jobs, but new kinds of jobs."** However, one thoughtful comment by a West Tennessee executive points out that Tennessee's economic problem is complex and the solution cannot be simple:

"I do not like to see or hear representations that an economic transition to so-called high technology is a solution to our problems. All industry makes increasing use of high technology, but 'high tech', as such, is not a solution for very many of the unemployed, nor do I think this state and/or this nation can solve its problems with this grand transition."

Underlying the concern about unemployment and the recession's effect generally, and the suggestions for retraining and restructuring, is the assumption that we can do what is necessary. An East Tennessee manufacturer conveys the spirit of the challenge so many of our panelists recognize:

"We, the U.S.A., are emerging from a capital-intensive industrial society to a knowledge/skill-intensive information/services/industrial society. Tennessee is still in transition from agriculture to industry. It's a very large challenge, but for the first time in many years the state executive seems intellectually aware of what needs to be done.

Jobs are inexorably related to productivity. Growth in jobs is growth in productivity. We must choose to 'do the right things.' Doing the wrong things right won't matter; doing the right things half right will make us prosperous. Knowledge/skill job content in any of several areas we can claim excellence in is the key!" ■



Budd Company brake manufacturing plant, Johnson City, Tenn.

ECONOMIC OUTLOOK FOR TENNESSEE AND THE NATION

Niles C. Schoening

For the past twelve years the U.S. economy has been afflicted with successive rounds of inflation and unemployment. The resulting sudden price changes have been blamed for destabilizing the American economy and causing the recent series of business recessions. This pattern of accelerating inflation, followed by accelerating unemployment, can be seen in Figure 1.

The recession of 1974-75 was preceded by an explosion of prices that took the annual rate of change as measured by the consumer price index from 3.3 percent in 1972 to 11.0 percent in 1974. By 1975 the unemployment rate had grown to 8.5 percent, from 4.9 percent in 1973. After this recession passed, unemployment in the U.S. was never again to fall below 5 percent on an annual basis.

The current recession was also preceded by a burst of inflation. In 1980, the consumer price index grew at an annual average rate of 13.5 percent. Before that, however, the Federal Reserve had begun to take steps to reduce the growth of the money supply. Endorsing a "monetarist" policy stance, the Fed explicitly changed its policy emphasis in October 1979 – from interest-rate targeting to money-growth targeting. As money growth slowed from 1979 to 1980, interest rates soared. In March 1980, the Fed introduced strict credit controls and the economy spun into a short, sharp recession. Credit extensions virtually ceased and the housing and auto sectors were devastated.

Niles C. Schoening is a Research Associate at the Center for Business and Economic Research. He is former director of the Tennessee State Planning Office in Nashville.

The ending of credit controls led to a brief rebound in the second half of 1980, but this recovery was very short lived. The inflation rate remained very high and, consequently, the Fed continued its policy of monetary restraint.

Credit Restraint Results

By the end of 1981, credit restraint again led to a severe contraction of the housing and auto sectors. Housing starts fell from 1.85 million in the first half of 1979 to 1.50 million during the last half of 1980, and then to only 0.87 million in the fourth quarter of 1981. In that same quarter, auto sales averaged 7.4 million vehicles at an annual rate – 34 percent below the comparable figure for the first quarter of 1979. Unemployment grew to 7.1 percent in 1980, 7.6 percent in 1981, and 9.7 percent in 1982 – the highest level it has attained in the post-war period. Capacity utilization, which averaged 74.9 percent in 1980, fell to 67.8 percent by November 1982, the lowest value recorded since 1948.

The current recession, which has now lasted seventeen months, is one of the most lengthy on record. Looking only at the decline in real GNP which was 1.9 percent between the third quarter of 1981 and the third quarter of 1982, the present recession appears no more serious than others the U.S. economy has suffered in the past. However, coming so close on the heels of the 1980 downturn, the recession of 1981-82 started far below a position of full employment and consequently was more serious than a year-to-year comparison would indicate. In fact, the U.S. economy has scarcely grown at all since 1980.

By late 1982, the domestic downturn had become an international one affecting nearly all Western bloc nations. Industrial production fell and unemployment soared to post-war highs in almost every country. Because of this economic weakness, the demand for U.S. exports declined more rapidly than did U.S. imports, leading to a negative balance of trade.

The Good News

There was some good news, however, amid all the bad news in 1982: price increases have fallen dramatically since the second half of 1981. The consumer price index, which was still rising in excess of 10 percent in year-to-year terms in October 1981, was increasing by less than 5 percent in November 1982. The GNP deflator, which grew at an 8.8 percent annual rate in the fourth quarter of 1981, increased at less than 5 percent in the first three quarters of 1982. This slowdown in inflation, largely a result of weak demand throughout the economy, was intensified by heavy price discounting as inventories were liquidated early last year. Wage settlements were also quite modest. The rate of increase

TABLE 1

STATE AND INDUSTRY SELECTED VARIABLES: AMOUNTS AND ANNUAL AVERAGE RATES OF CHANGE FOR THE FORECAST PERIOD 1983-1991

	1983	1984	1985	1985-1991
U.S. Gross National Product (Billions of 1972 dollars)	1,527.7	1,604.3	1,663.4	
Percentage Change	3.22	5.01	3.68	2.83
Tennessee Gross State Product (Millions of 1972 dollars)	27,168.7	28,277.5	29,157.4	
Percentage Change	2.78	4.08	3.11	3.16
Tennessee Personal Income (Millions of 1972 dollars)	20,529.8	20,958.5	21,446.7	
Percentage Change	2.10	2.09	2.33	2.93
Tennessee Nonagricultural Jobs (Thousands)	1,730.4	1,756.7	1,778.0	
Percentage Change	0.92	1.52	1.21	1.53
Tennessee Manufacturing Output (Millions of 1972 dollars)	9,771.0	10,411.3	10,843.8	
Percentage Change	4.08	6.49	4.15	2.83
Tennessee Construction Jobs (Thousands)	83.9	88.4	89.9	
Percentage Change	2.80	5.37	1.72	1.48
U.S. Unemployment Rate (Percent)	9.7	8.9	8.1	
Tennessee Unemployment Rate (Percent)	11.4	10.6	9.8	--

SOURCE: Tennessee Econometric Model, December 1982 solution.

The recovery will be paced by an expansion of consumption expenditures prompted by higher real disposable income . . . . Also encouraging higher spending is the rapidly aging stock of consumer durables.

in average hourly earnings had slowed to less than 6 percent a year in the Fall of 1982 from a rate of 8 or 9 percent in 1979 and 1980. This trend bodes well for achieving the goal of stabilizing prices in the long run.

Prospects for Recovery This Year

This forecast calls for a modest recovery in both the national and state economies this year. Looking at Table 1, U.S. GNP is expected to grow by 3.2 percent in real terms this year and by 5 percent next year. The growth rate of Tennessee gross state product (GSP) is forecast to be slightly smaller, at 2.8 percent this year and 4 percent next year. A recovery of this magnitude is not sufficient to take up all the slack in the labor market, so the forecast calls for continued high levels of unemployment in both Tennessee and the U.S. The unemployment rate should fall only very slowly during the forecast period (Figure 1). Inflation, on the other hand, is expected to continue declining this year and to average 5.5 percent as measured by the CPI and 5.9 percent by the GNP deflator. A detailed sector-by-sector analysis of the state forecast is available in the next article.

The recovery will be paced by an expansion of consumption expenditures prompted by higher real disposable income. Consumers' real incomes will be greater because of the third round of federal personal income tax cuts currently scheduled to take place in July and because of lower prevailing rates of inflation. Also encouraging higher spending is the rapidly aging stock of consumer durables. The average age of the nation's fleet of private motor vehicles is 5.8 years – a figure higher than at any time in the recent past. Since 1978, housing starts have averaged less than 2 million units a year – a figure thought to be a minimum to satisfy demand and to replace those units that are substandard or are removed from the housing stock each year. Hence, the year should see a resurgence in housing and automobile demand, but final sales in real terms should still remain below historical levels.

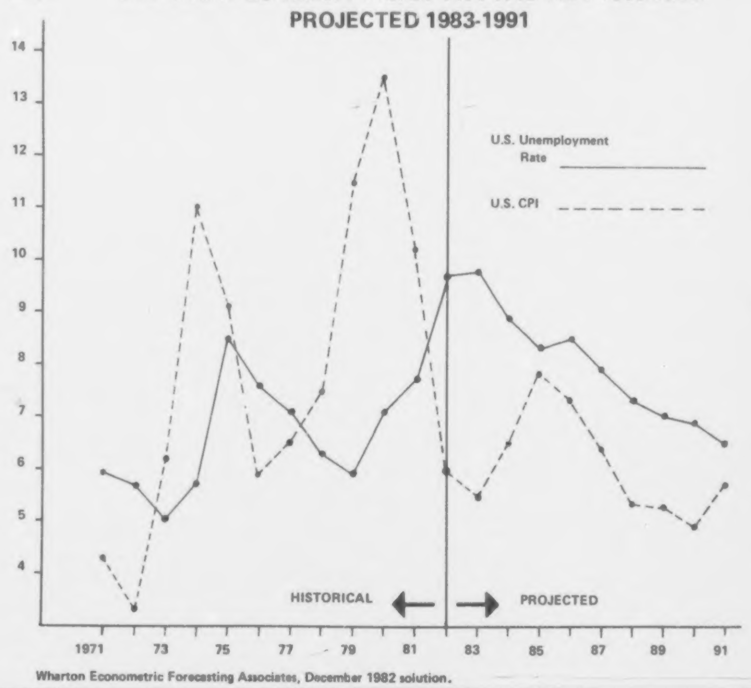
Negative Factors

However, there are a number of factors working against a consumer-led recovery. First, the rate of personal saving has remained high throughout 1982. Personal savings jumped almost $22 billion last July and the savings rate increased from 6.7 percent in the second quarter to 7.0 percent in the third. If interest rates remain high during the year and the newly allowed money market accounts become more popular, a higher personal savings rate could dampen the predicted recovery. Continued high levels of unemployment could also have a negative psychological effect on consumer spending plans, as could proposals to cut or delay increases in federal transfer payments (Social Security, Medicare, and food stamps).

Nevertheless, if there is a recovery, it will probably be led by consumer spending because it is unlikely that the economy will get much of a boost this year from the other components of demand – business investment, government spending, or exports. With plant utilization at such low levels, a substantial recovery will be needed to generate higher demand for new plant and equipment. Adding to the problem are high real interest rates. Even though long-term rates are projected to decline by 3 percentage points, business investment is also expected to continue to

FIGURE 1

COMPARISON OF CHANGES IN THE CONSUMER PRICE INDEX AND THE UNEMPLOYMENT RATE: ACTUAL 1971-1982 AND PROJECTED 1983-1991



Wharton Econometric Forecasting Associates, December 1982 solution.

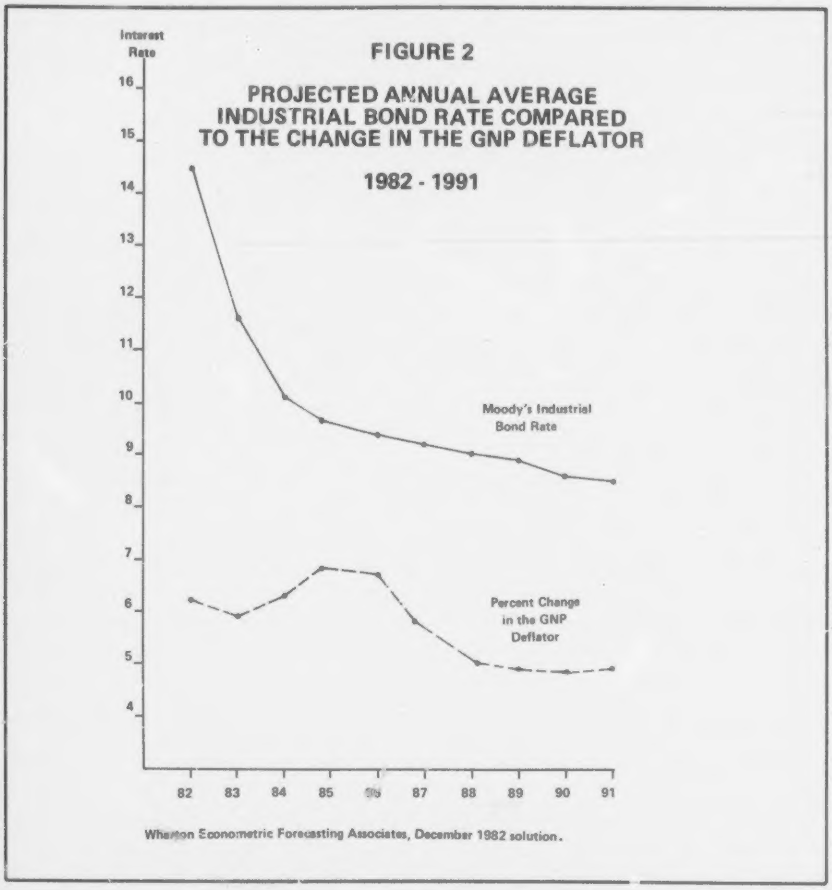


FIGURE 2

PROJECTED ANNUAL AVERAGE INDUSTRIAL BOND RATE COMPARED TO THE CHANGE IN THE GNP DEFLATOR

1982 - 1991

Wharton Econometric Forecasting Associates, December 1982 solution.

drop. As can be seen in Figure 2, the real interest rate (the nominal interest rate less the percent change in prices) is forecast to fall in 1983 but stay high by past standards. It should not return to its historical average of about 3 percent until 1985-86.

Some of this foregone growth in business spending will be pushed forward into 1984, with an increase of 8.7 percent projected for that year. Equipment spending is expected to grow faster than that for structures, as the office-building boom in most major American cities is expected to wind down in 1983 and 1984. Over the decade, business fixed investment is forecast to grow at 2.3 percent per year, slightly slower than GNP.

Export Sector Outlook

This year's economy is not expected to receive much help from the export sector, either. Because of the continued weakness of the economies of our major trading partners and the strengthening of the dollar on foreign exchanges, U.S. merchandise exports are expected to decline by 2.5 percent in constant dollars during the year. Any recovery in the U.S. will lead to a strong increase in demand for imports, and as a result, real net exports are projected to fall from $31.1 billion in 1982 to $17.6 billion in 1983.

Some stimulation of the economy is expected during the year from increased government spending on defense. However, these increases in outlays are to some extent counterbalanced by cuts in nondefense purchases of goods and services and by a spending slowdown at the state and local government levels.

Another source of anxiety about the future course of the recovery is the alarming growth of the federal deficit, now predicted to lie somewhere between $150 and $200 billion in fiscal 1984. Many economists worry that the recovery will be aborted if the Fed cannot, or will not, expand the money supply sufficiently to finance both the deficit and the expected increase in demand for credit from the private sector.

Undoubtedly, there will be further efforts by both the Administration and Congress to close this huge budget gap. These efforts are likely to take the form of tax increases as well as expenditure cuts. Among the revenue "enhancements" that will probably be considered are the acceleration of already scheduled Social Security tax increases, the elimination of income tax indexation which was to start in 1985, and the rescinding or postponing of the 10 percent personal tax cut that was to take place in July. Proposals have also been made to stretch out or cancel new defense weapons systems, lower or eliminate cost-of-living increases for Social Security recipients and others receiving government transfers, and further tighten eligibility requirements for entitlement programs.

Another source of anxiety about the future course of the recovery is the alarming growth of the federal deficit. Many economists worry that the recovery will be aborted if the Fed cannot, or will not, expand the money supply sufficiently to finance both the deficit and the expected increase in demand for credit from the private sector.

Given the present uncertainty in Washington over the future direction of fiscal policy, it is difficult to determine what impact the government sector will have on the future course of the economy. For the purpose of this forecast, however, it is assumed that the scheduled personal tax cut goes into effect in July 1983, as does the indexation of income tax brackets in 1985. Also, most of the business tax cuts enacted through the 15-10-5-3 Accelerated Cost System remain in effect, but the "safe harbor" leasing provisions are to be repealed in 1984. It is also expected that most of the initiatives undertaken by the Administration in the 1983 budget proposal will be carried forward into future years. However, defense outlays are assumed to increase at a 5 percent annual rate in constant dollars, which is considerably below the 8 percent annual rate suggested by the President.

Recovery of the Tennessee Economy

The anticipated recovery of the national economy will soon make itself felt in Tennessee. Historically, Tennessee's economy, as measured by GSP, has grown faster from year to year than has the U.S. economy. However, the forecast calls for slower growth this year and next. Given the expected slow pace of the recovery nationally, Tennessee's rate of recovery should also be quite modest in 1983. The annual average rate of unemployment should remain at about the same level as last year, with improvement finally coming in the last half of this year.

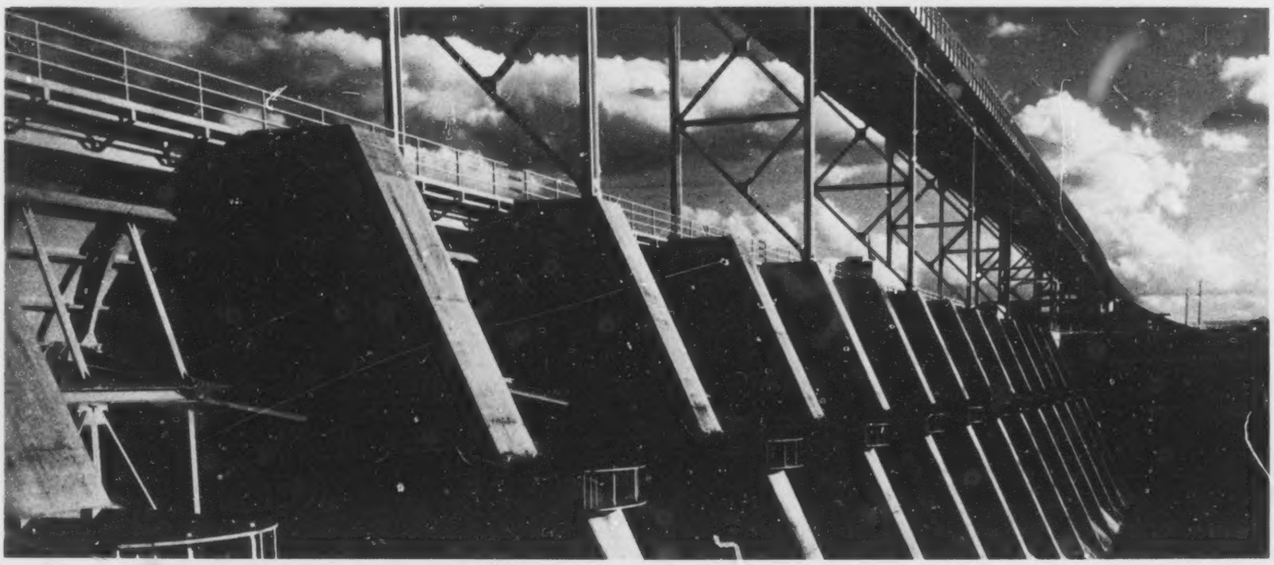
Up until the present downturn, one could comfortably make a number of assumptions about the likely future course of the state's economy. The first assumption was that, in general, the Tennessee economy should be expected to grow at a faster year-to-year rate than the national economy; second, that the Tennessee unemployment rate should remain below comparable U.S. figures, even during serious recessions; and third, that Tennessee's economy was sufficiently diversified to make it somewhat less vulnerable to cyclical downswings than other sections of the country. However, after reviewing the performance of the state's economy over the past three years, one can question the validity of all of these assumptions.

The present slump has led to declines in output and increases in unemployment that exceed the national average. Real GSP last year was 4 percentage points below the comparable figure for 1979. It appears that whatever diversification has occurred in the state's economy has made it more rather than less vulnerable to the business cycle. A concentration of manufacturing activities supplying inputs to the national construction and automobile industries and the fabrication of consumer durables such as home appliances and furniture has led to high unemployment rates across the state.

Recent layoffs at TVA and in state and local government, as well as continued in-migration into Tennessee, have compounded the problem. Since August 1980, the state has not experienced any month when the seasonally adjusted unemployment rate has fallen below the national figure.

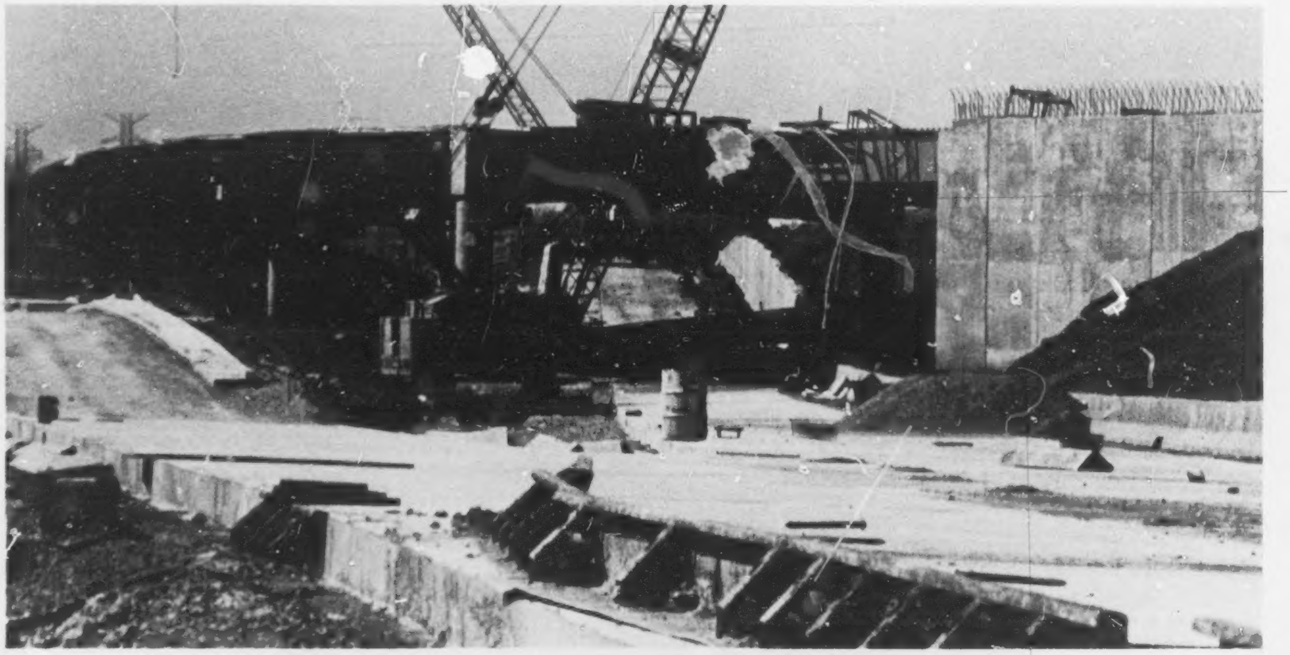
Tennessee's industry mix also will contribute to the state's forecasted slower-than-average recovery. Without an unusually strong rebound in housing construction nationally, it is unlikely that the state's durable goods industries will recover quickly. It is clear that recently Tennessee has become more of a "hostage" to interest-rate-sensitive industries. The state's long-term growth is now closely tied to the future prospects of these industries. This Outlook forecast calls for a return to a more rapid growth path in 1985, after the state's industries have fully recovered and have had time to adjust to the new "high technology" environment under which they will be competing in the future. ■

"Recent layoffs at TVA and in state and local government, as well as continued in-migration into Tennessee, have compounded the problem [of unemployment]. Since August 1980, the state has not experienced any months when the seasonally adjusted unemployment rate has fallen below the national figure."



OUTLOOK FOR SPECIFIC INDUSTRIES

IRVING DUBOV, RICHARD A. HOFLER, JOHN W. MAYO, PATRICIA D. POSTMA, NILES C. SCHOENING (EDITED BY JOHN W. MAYO)



In the previous article we saw that economic recovery, while inevitable, will be slow to develop. Nevertheless, throughout 1983 and 1984 the overall economic outlook will brighten. Tennessee, along with the nation, will experience moderate growth in output, employment, and real wages. Within the overall context of an improving economy, however, some sectors will rebound more rapidly than others. In this article the outlook for the major sectors of the Tennessee economy is discussed.

MANUFACTURING

Over the past decade, the manufacturing sector in Tennessee has fared quite well, both absolutely and relative to the nation as a whole. From 1972 to 1981, Tennessee manufacturing output grew at an average annual rate, in real terms, of 2.96 percent, while at the national level manufacturing output grew by only 2.31 percent. However, during the last three years, the Tennessee economy as a whole, and Tennessee manufacturing in particular, has suffered from economic stagnation. From 1978 to 1981, manufacturing output in Tennessee grew at a meager annual growth rate of .34 percent. Over the same time period manufacturing employment in Tennessee fell at an annual rate of 1.24 percent.

While economic stagnation at the state level can be attributed largely to the ongoing national recession, some differences in the nature and depth of the state versus national recession are becoming apparent in the manufacturing sector. These differences are apparent in both the output of manufactured goods and employment in the production of these goods. Figures 1 and 2 provide a comparison of recent employment growth rates in Tennessee durable and nondurable goods relative to the nation. For these figures, an employment index with a 1972 base (=100) was created for Tennessee and the U.S. The index rises and falls over time as employment grows and shrinks relative to the 1972 average employment. In Figures 1A and 1B, we see that manufacturing employment, in both Tennessee and the U.S. as a whole, is quite recession-sensitive. Employment declines occurred in the recessions of 1970, 1974-75, and 1980 and 1981.

Relative Growth Ratio

In Figures 2A and 2B, the Tennessee employment index is divided by the U.S. index, plotted over time for durable and nondurable goods. The result is a "relative growth ratio." If the ratio exceeds one for a particular month and economic sector, then Tennessee employment growth from 1972 until that month exceeded employment growth in the same sector of the U.S. A ratio less than one indicates employment growth in Tennessee at a rate less than that of the nation. This ratio, plotted over time, gives a comparison of employment growth in Tennessee and the U.S. after removing the influence of business cycle swings. Figure 2A reveals an interesting insight concerning the

**For author information, consult footnote on p. 3.*

FIGURE 1A

**NONDURABLE GOODS
TENNESSEE AND U.S. EMPLOYMENT INDICES**

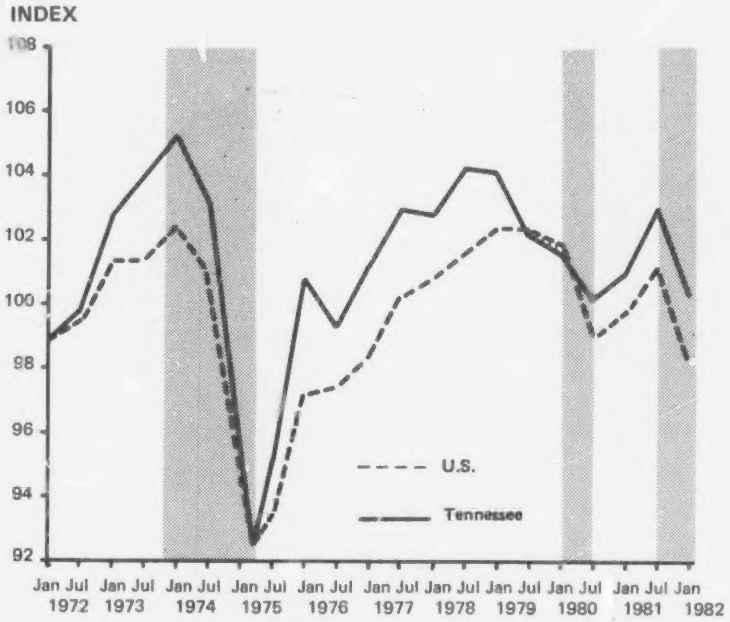
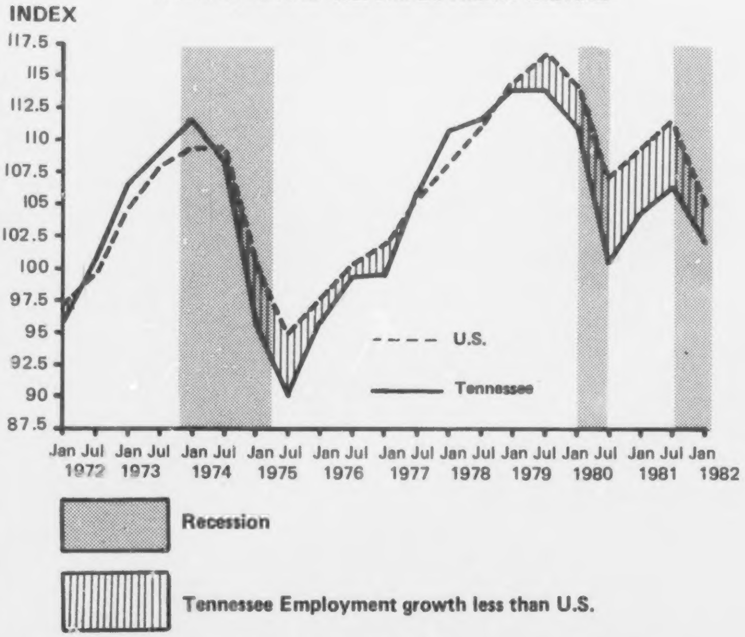


FIGURE 1B

**DURABLE GOODS
TENNESSEE AND U.S. EMPLOYMENT INDICES**



SOURCE: Center for Business and Economic Research.

nature of the current recession in Tennessee relative to the nation as a whole. In Figure 2A, we see that Tennessee's nondurable goods employment, while suffering from absolute declines as in Figure 1A, has fared quite well relative to the U.S. in the current recessionary period. The ratio has consistently remained above one, indicating that nondurable goods employment in Tennessee has outpaced its national counterpart. Furthermore, from 1980 to 1982 we see that the relative growth ratio gap between Tennessee and the U.S. has widened. This indicates that Tennessee's nondurable goods employment has not been as sensitive to the current economic downturn as nondurable goods employment elsewhere.

In contrast to nondurable goods employment, the relative growth ratio for durable goods is shown in Figure 2B. There we see that durable goods employment in Tennessee has suffered not only absolutely, but also relative to the U.S. Beginning in 1978, employment growth in Tennessee durable goods has consistently been slower than in the nation as a whole. Since 1980 Tennessee's relative position in durable goods employment has improved mildly, yet overall growth since 1972 still remains less than in the U.S. This suggests that a major cause of the current differential in local and national unemployment rates has been the inability of durable goods employment growth in Tennessee to hold its own in the current recessionary period.

Generally speaking, the next two years will be characterized by economic recovery in the manufacturing sector. Growth will be slight in early 1983, but will gain momentum in late 1983 and 1984. Real output, real wages, and employment will all increase in 1983 and 1984.

Short-term real output growth is most meaningfully differentiated between nondurable goods and durable goods. Real output growth of Tennessee's nondurable goods will be moderate in both 1983 (4.24 percent) and 1984 (4.79 percent). Textiles and apparel will lead 1983 nondurable goods growth, while in 1984 rubber and plastics will lead nondurable goods growth. Durable goods growth will begin slowly in 1983 (3.87 percent) and become more vigorous in 1984 (8.80 percent). Growth of lumber, transportation equipment, nonelectrical machinery, and primary metals will be particularly strong in 1984, as economic recovery should be in full swing.

Employment Growth

The employment pattern in the manufacturing sector will mimic the output growth pattern. Employment growth in nondurable goods should be mild in both 1983 (1.36 percent) and 1984 (1.71 percent), while durable goods employment will begin slowly in 1983 (0.92 percent) and become stronger in 1984 (4.08 percent). Particularly strong employment growth will be registered in transportation equipment for durable goods (almost 8 percent in 1984) and apparel in the nondurable goods sector (3.7 percent for 1983-84).

The long-range outlook for economic activity in the Tennessee economy remains bright. Manufacturing output and employment should both increase moderately (2.83 percent and 0.84 percent, respectively) from 1985 to 1991. However, it should be noted that, as the current recession has shown, the durable goods manufacturing sector in Tennessee will continue to be very recession-sensitive. Tennessee durable goods that will show consistently above-above-average output growth in the long term include transportation equipment, electrical machinery, and primary and fabricated metals. Long-term output and employment growth in the nondurable goods sector in Tennessee will be more consistent than in its durable goods counterpart. Real output will grow in the 2-3 percent range for the 1985-1991 period, while employment will grow around 1 percent annually. Real wages in the manufacturing sector will increase at an annual rate of 1-2 percent in Tennessee during the 1985-1991 period as the productivity of manufacturing employees increases.

FIGURE 2A

NONDURABLE GOODS
RELATIVE GROWTH RATIO

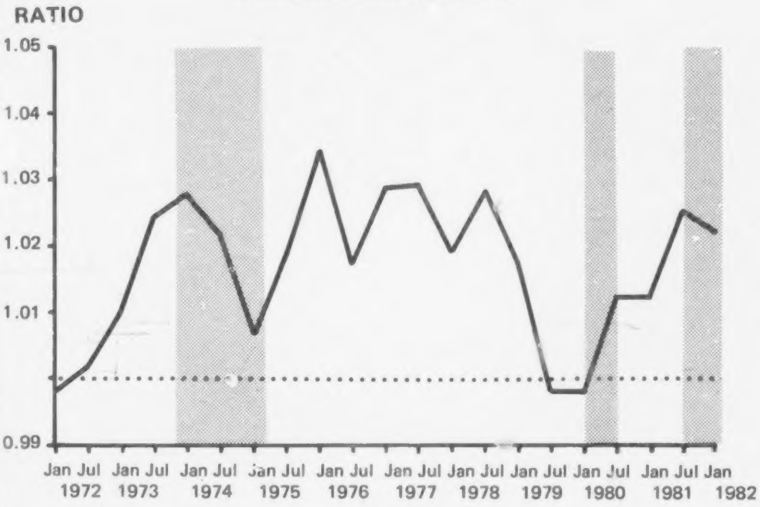
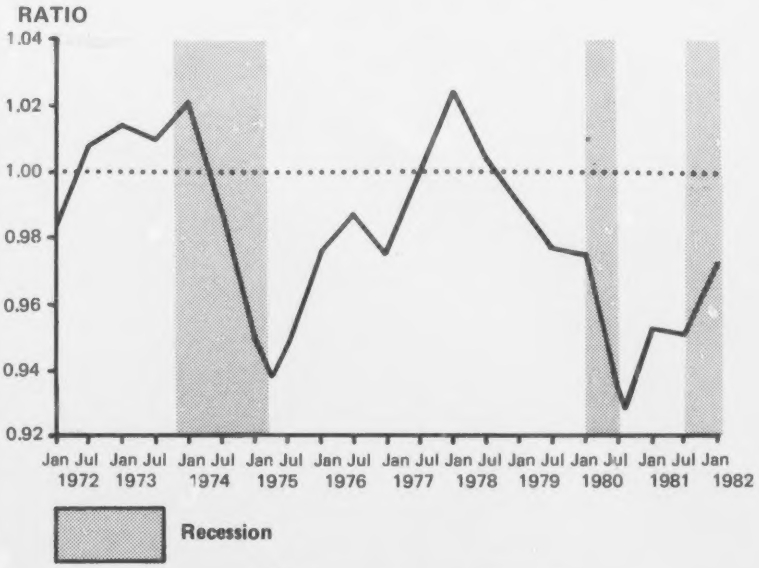


FIGURE 2B

DURABLE GOODS
RELATIVE GROWTH RATIO



SOURCE: Center for Business and Economic Research.

CONSTRUCTION

It is no surprise that state construction has recently paralleled the fluctuations in the Tennessee and U.S. economies. The last ten years have seen cycles of two- to three-year expansions followed by two- to three-year recessions in the national and state economies and in the construction sector. The easing of mortgage credit conditions and the mid-1975 recovery of the economy stimulated the last expansion in Tennessee construction over the period 1976-1978, yielding the historically highest level of real (adjusted for inflation) output in 1978, $966 million.

As is well known, the bottom fell out in 1980. As mortgage interest rates skyrocketed and the supply of mortgage funds evaporated, real national and state nonresidential and residential construction outputs declined sharply. In fact, Tennessee's real 1980 contract construction output fell 13.1 percent from its 1979 level, and its 1981 real construction output fell another 3.5 percent. Few state industries exhibited larger percentage declines in real output.

Interest Rates

Interest rates began 1982 at very high levels but declined towards the end of the year. Two factors were principally responsible for high interest rates in the first part of the year. The first was slow growth of the money supply. Monetary restraint tends to raise interest rates, which inhibits private spending for, among other things, residential construction. Second, inflationary expectations arising from huge budget deficits are often manifested in higher interest rates.

> "Real wages and salaries in the state will exhibit strong and consistent growth in the long term as they respond to rising demand for construction output."

More recently, a more rapid growth rate of the money supply and an exceptionally soft demand for money have brought interest rates down. Although mitigated to some extent by upward pressure of large federal deficits, interest rates are expected to remain low for the near future. Together with growth in the gross state product, lower interest rates will result in a revival of both residential and nonresidential construction for 1983-1984.

In 1983 and 1984, construction employment and output will grow. However, employment's path in reaching a 1984 level of nearly 89,000 jobs (equal to the previous high which occurred in 1979) will differ from output's path. Whereas 1982 showed a growth spurt of 6.5 percent, 1983's growth will slow considerably to 2.8 percent. Then, employment will again jump forward during 1984 at an annual rate of 5.4 percent.

Not surprisingly, real average annual wages across Tennessee will mirror the state's real output. The state's wages fell slightly in 1982, but, gathering momentum, will grow at nearly 0.9 percent in 1983 and 1.7 percent the following year. Construction wages can be most clearly characterized as consistent. They exceeded average real wages for all of the state's workers during the previous decade and will do so in 1983 and 1984. In addition, construction real wages will grow at a relatively stable rate, which will vary between 1.6 percent in 1983 and 1.8 percent in 1984.

Long-term Forecast

The period 1985 through 1991 reflects the usual situation of construction output, responding to both Tennessee's overall economic growth and declining long-term interest rates. Real state GSP will grow steadily and robustly at an average annual rate of 3.2 percent, dipping below 3 percent only twice, 2.4 percent in 1986 and 2.7 percent in 1990. Interest rates, measured by Moody's corporate bond rate, will decline in every year, dropping from 10.01 percent in 1985 to 8.6 percent in 1991. Real construction output will respond to the strong performances of real state output and interest rates by growing during 1985-1991 at an average annual rate of 2.4 percent, rising from $994.6 million in 1985 to $1,148.1 million in 1991.

Real wages and salaries in the state will also exhibit strong and consistent growth in the long term as they respond to rising demand for construction output. Average salaries in all state sectors will grow at an average annual rate of 1.6 percent, while construction salaries will increase by an average of 2.0 percent per year. During this time the historical excess of construction salaries over statewide average salaries will widen. In 1985, construction salaries will be 10 percent greater than the salaries in all sectors; by 1991, they will be nearly 13 percent larger.

SERVICES

Even during recent recessions, the services sector has maintained a consistently positive performance. Indeed, annual employment gains in services during the past two years have equalled the highest annual gains of the 1970's. Last year's economic forecast, which predicted an upturn in the whole state economy, forecast increases of more than 13 percent in services' nominal output for this past year, though we now estimate it increased by about 10 percent. The duration of this recession, however, has affected the short- and long-term outlook for growth in services, just as it has for every other sector; the outlook for 1983 and the rest of the decade is more conservative than it was a year ago.

Jobs in health services account for nearly one-third of all service jobs, both in Tennessee and the U.S. These have

John W. Mayo is a Research Assistant Professor at the Center for Business and Economic Research and Assistant Professor of Economics, The University of Tennessee, Knoxville. His research specialties include energy and microeconomics.

increased rapidly over the past decade as federal programs have made extensive medical care accessible to a much larger segment of the population. Hotels and related travel and tourist businesses, personal services, and business services have also enjoyed relatively high growth over the past decade.

Short-term Forecast

One factor in the lower rates of service growth forecast for the decade ahead is that peak rates have probably passed for growth in health services and educational services (private schools and colleges). As state population increases and recovery brings rising personal income, personal services, entertainment, social and related services should increase. The growth rate of 7.4 percent in nominal output forecast for 1983 may appear modest compared to 1982's 10 percent increase, but the effect of the World's Fair on travel and tourism services temporarily buoyed this sector during 1982. The year 1984 continues with higher growth in nominal output (9.3 percent). As a labor-intensive sector, the services sector shows relatively large gains in the short-run in numbers of jobs. Forecast employment increases of 2.9 percent in 1983 and 2.7 percent in 1984 are higher than in any other sector and should add about 20,000 jobs over the next two years.

Overall, services will continue steady growth over the decade, and it seems likely that the business services component will exhibit the largest gains, particularly in terms of output. This is to some extent dependent upon an upturn in the general economy and the fact that these are inputs to commercial and manufacturing activities. The other underlying factor, however, is the gradual structural change in the way in which we do our business. More and more of the nation's product is derived not from the production of hard goods, but from the production of intangible services, or "thoughtware," as one analyst has designated it. Whether it is the production of automobiles, urban planning, medical diagnoses, inventory management for trade, or cash management in banking, higher productivity and competitive advantage will increasingly be derived from the employment of business services supplying some form of this "thoughtware."

Long-term Forecast

In view of the historic record, the long-run forecast for the services sector is an interesting one. During the 1970's, growth rates in output from services tended to exceed those of other sectors and rates of employment even more so. Long-run rates of growth in nominal output services will vary modestly from 7.9 percent to 8.7 percent through 1991 and will be generally less than overall growth rates. Services employment, too, shows smaller gains, relative to other sectors, than was the case in the past decade, with the addition of approximately 59,000 jobs from 1982 to 1991, compared with 97,000 jobs between 1972 and 1981. Considering the strong growth during the current recession, it seems likely that this long-run forecast for services may be too conservative. The problem, no doubt, stems from the fact that econometric models relate the services sector to the overall performance of manufacturing and commercial activities, which will indeed be less robust during the 1980's than the 1970's, but in addition, such historically based models inherently underestimate structural shifts of the kind still underway in our economy.

"Overall, services will continue steady growth over the decade, and it seems likely that the business services component will exhibit the largest gains, particularly in terms of output."

TRADE

The trade sector continues to be disappointing nationally, as well as in Tennessee, as first the July tax cut failed to stimulate consumer spending, then both disappointing fall season sales and initially low Christmas holiday sales appeared to belie any prompt consumer-led recovery. However, recent surveys of consumer confidence, robust late-December retail sales and decreasing interest rates provide some basis for expectations of improvement in trade nationally. Tennessee retail sales in 1983, adjusted for inflation, will increase by about 6 percent, with significant improvement by 1984. By 1984, along with gains in other areas, auto sales should provide a big boost with a forecast real increase in sales of 9.5 percent – or more than 16 percent in nominal terms. In both the next two years, though, growth in real output and employment in the trade sector will lag behind most economic sectors.

The relatively modest growth forecast for the aggregate economy over the next decade will continue to dampen trade growth. Trade employment will not achieve 1979's peak levels of 389,000 jobs until after 1987, though gains will occur at an increasing rate every year after 1984. Growth in retail sales is projected to slow from a 3.37 percent gain in 1984 to 1.96 in 1985, increase steadily to an annual gain of 3.81 percent during 1988, and taper off thereafter. Rates of increase in retail sales measured by current dollars show a steady decline after 1984, in contrast to the cyclical pattern of real rates. This, of course, is the result of the declining rates of inflation forecast throughout the decade.

FINANCE, INSURANCE, AND REAL ESTATE

Following the usual practice in aggregate economic analysis, finance, insurance, and real estate (FIRE) are grouped into one sector for purposes of forecasting output, employment, and wages. The sector will certainly respond to the higher level of activity in the state as business investment rises, interest and mortgage rates moderate, and consumer spending rises. However, a "wait-and-see" attitude caused by the rapid fall in the inflation rate will delay dramatic growth in this sector as some major purchases are postponed in anticipation of relatively better future buys.

FIRE's output in current dollars will rise by a strong annual rate of 7.5 percent in the short term, with peak growth of 8.3 percent in 1984. However, over half of this growth will be an illusion due to inflation. Output in 1972 dollars will rise by only 2.8 percent, with peak growth of 3.1 percent in 1984. In real terms (adjusting for inflation), FIRE output will exhibit a smaller decline than gross state product (GSP) in 1982 (-3.0 percent versus -3.1 percent for GSP) and will grow at a slower rate in 1983 and 1984.

In contrast to the performance of FIRE's output growth, this sector's employment outlook is good. Both Tennessee and this sector suffered employment losses in 1982, with FIRE's loss (2.4 percent) exceeding the state's (2.2 percent). Both state and FIRE employment will grow at increasing rates in the short term. However, FIRE's rate in 1984 (1.5 percent) will exceed that of the state (1.3 percent).

One partial explanation for this sector's relatively slow rate of output recovery can be found in FIRE's output per employee: that is, in its productivity. During 1982-1984, FIRE will suffer from sluggish growth in productivity relative to the state. For instance, Tennessee's productivity will grow at a 2.7 percent annual average rate, while FIRE's will rise by only 1.8 percent per year. FIRE's sluggishness may be a consequence of, in part, its decline in output per employee of nearly 1 percent per year over 1978-1982. Despite the above, this sector's productivity will still be nearly three times that of the statewide average.

Increased Wages

Increased business investment and consumer spending during the short term will benefit the annual wages of FIRE workers more than the wages of others. This sector's wages will grow at an annual average rate of 1.9 percent, while the statewide average growth will be only 1.3 percent. In addition, while all sectors suffered a net average decline in wages during 1982, FIRE wages grew by nearly 2.0 percent. Higher growth rates applied to higher average annual salaries ($8,292 per worker in FIRE versus $7,383 per worker across the state in 1984) means that the relative wage advantage of this sector's workers will continue to grow.

Loan Activity

The 1982-1984 period will give commercial banks as much mediocre news as good news. Total deposits will grow steadily from $22,708 million in 1982 to $25,728 million in 1984. However, this translates into an average annual growth rate of only 6.4 percent. Total loans grew by a healthy 10.25 percent in 1982 and will grow by 9.5 percent in 1983. These relatively high rates are due to the moderation of interest and mortgage rates. However, the short-term trend is for a constantly declining rate of loan growth from year to year. During 1984, loans will grow at only 7.7 percent. Despite the weakening performance of loans in 1984, the loan-to-deposit ratio will climb steadily from 66.0 percent in 1982 to 68.7 percent in 1984. This increased loan demand will be due, in part, to increased auto sales and lower interest rates. However, these lower interest rates will reduce the average yield on loans by over four percentage points, from 15.0 percent in 1982 to 10.9 percent in 1984.

The experience of savings and loan (S&L) institutions will differ significantly from that of commercial banks in the short term. Whereas total loans for commercial banks will be rising at declining rates, loans for S&L's will be responding to falling mortgage rates by growing at increasing rates. In 1982, total S&L loans grew 7.6 percent to $6,999 million. By 1984, they will reach $8,430 million, having increased 10.5 percent in that year alone. In addition, the assets of S&L's will not only rise each year but, for the 1983-1984 period, increase by ever greater increments. Assets grew by 6.8 percent to $8,209 million in 1982, will rise by 8.6 percent in 1983, and will increase by over 10 percent in 1984, to reach a level of $9,837 million.

TRANSPORTATION, COMMUNICATIONS, AND PUBLIC UTILITIES

In Tennessee, most output and employment in transportation, communications, and public utilities is attributable to trucking and warehousing, railroading, and telephone services. Air, barge, and bus transport are not important sources of employment and contribute relatively small amounts to total output. The state has relatively few private utility workers, who are also a part of this industry group, because a great deal of electricity and gas distribution in Tennessee is carried out by municipalities. Consequently, most public utility employees are included in the government sector. Since trucking and warehousing account for 39.2 percent of all employment, and communications, 28.6 percent, future growth of this sector is heavily tied to the prospects for these two industries in Tennessee.

The forecast, as shown in Table 1, calls for sectoral output to grow at an annual rate that is slightly higher than for the state economy as a whole (a 3.59 percent annual rate versus a 3.21

"Whereas total loans for commercial banks will be rising at declining rates, loans for S & L's will be responding to falling mortgage rates by growing at increasing rates."

TABLE 1

FORECASTS OF OUTPUT AND EMPLOYMENT – TRANSPORTATION, COMMUNICATIONS, AND PUBLIC UTILITIES IN TENNESSEE

Year	Output (In millions of 1972 dollars)	Annual Percent Change	Employment (Thousands)	Annual Percent Change
1982	$2,152.2	-3.47	82.3	-3.29
1983	2,218.5	3.08	83.4	0.78
1984	2,301.4	3.74	84.3	1.09
1985	2,391.3	3.91	85.4	1.28
1986	2,477.1	3.59	86.5	1.32
1987	2,569.5	3.73	87.7	1.37
1988	2,665.1	3.72	88.9	1.39
1989	2,762.0	3.64	90.2	1.38
1990	2,854.2	3.34	91.4	1.33
1991	2,956.3	3.58	92.6	1.34

SOURCE: Tennessee Econometric Model, December 1982 solution.

percent rate for gross state product over the 1982-1991 period). Employment is expected to increase at about the same rate as total nonagricultural employment (1.25 percent versus 1.42 percent for total nonagricultural jobs).

Deregulation Impacts

What could significantly change this forecast is the long-run impact of the deregulation of the transportation and communications industries and the rapid introduction of new technologies in the field of telecommunications. Passed by Congress in 1980, the Motor Carrier Act eased entry requirements and partially deregulated freight rates in the trucking industry. In addition, the recently passed federal bill increasing fuel taxes also overrode the remaining state restrictions on the size and weight of truck trailers. These regulatory changes, when taken together, could substantially improve productivity in the industry, lower costs, and foster a more rapid increase in output than is presently being forecast. Railroad freight rates were also partially deregulated in 1980 with the passage of the Staggers Rail Act. The bill also made it easier for railroads to merge with each other and to abandon unprofitable services. The recent approval of the merger of the Norfolk and Western and the Southern railroads and the proposal by L&N to abandon services in several Middle Tennessee counties could also have a significant long-run effect on sectoral output by affecting the long-run growth of railroads in the state. Finally, the break-up of the American Telephone and Telegraph Company and the deregulation by the Federal Communications Commission of major components of the broadcasting and data transmission industries could also considerably change the forecast. The introduction of new technology in fields such as direct satellite broadcasting could also alter the long-run growth of jobs and output in this sector.

In summary, the forecast appearing in Table 1 is probably conservative for both the short and long term. Given the recent major shifts in the regulatory climate and rapid technological change on the horizon, it is difficult to determine the future course of this sector with any certainty. If anything, it will likely become more, rather than less, important to the state's economy over the next nine years.

ENERGY

After a decade of radical changes in the energy sector, the growth of prices and consumption of most primary energy sources appears to be stabilizing. No price shocks occurred in 1982, and, while they are still possible, external price shocks such as those imposed by the 1973-74 Arab oil embargo are less likely now than in the past for several reasons. First, the world and national recessions have softened the demand for energy, particularly oil. This has left exporting oil countries scrambling to find buyers. Second, the use of coal and uranium have begun to supplant the use of oil and fuel oil in both industrial uses and in electricity generation. Finally, increased oil supplies from the North Sea and Mexico, together with the oil accumulated in the Strategic Petroleum Reserve, have reduced this country's vulnerability to an OPEC boycott.

Decline of Consumption

During 1982 consumption of electricity, natural gas, coal, gasoline, and fuel oil all declined. Because each of these energy sources is an input into industrial, commercial, or residential economic activity, the reduced consumption in 1982 largely reflects reduced activity in these sectors. In addition, real price increases in electricity and natural gas contributed to soft demand for these energy sources. Finally, increased efficiency of energy use through additional home insulation, car-pooling, and higher miles-per-gallon automobiles have retarded the growth of energy demand.

Real prices of electricity, coal, and natural gas will rise during 1983-84, however, by less than the increases of recent years. The average price of

> "Within the electricity sector, the largest consumption gains will come in 1984 from the commercial and industrial sectors as overall economic activity accelerates. The demand for coal will grow slowly in 1983 and then more rapidly in 1984."

electricity in Tennessee will rise from around 4.75 cents per kilowatt hour (kwh) in 1982 to almost 5.4 cents per kwh in 1984. This represents an annual increase of 6.35 percent, compared to 17 percent for the 1977-1981 period. The average price of a ton of coal in Tennessee will rise from around $43 in 1982 to almost $50 in 1984, an average annual increase of about 8 percent. After accounting for inflation, this represents only a real increase in the 1 to 2 percent range. The slow growth in coal prices during 1983-84 is likely to be attributable to easing wage demands as the overall inflation rate falls, an abundant supply, and slow growth in demand due to the slow increase in industrial activity. Natural gas prices in Tennessee are expected to increase moderately (around 15 percent) in 1983-84. The price increases of natural gas during 1983-84 will come largely from consumers bidding up the price of that portion of natural gas supplies that do not have regulated prices, as prescribed by the Natural Gas Policy Act of 1978. Under this act a small amount of natural gas was deregulated, while some 20 categories of gas were created, each with different regulated prices.

Consumption Outlook

The combination of higher prices, slow economic recovery, and increased efficiency of energy use will result in very slow growth in energy consumption during 1983-84. Total electricity consumption in kilowatt hours will rise during 1983-84 by 3 percent annually, after declining by 1.12 percent in 1982. Within the electricity sector, the largest consumption gains will come in 1984 from the commercial and industrial sectors as overall economic activity accelerates. The demand for coal will grow slowly (0.94 percent) in 1983 and then more rapidly (2.68 percent) in 1984. The combination of moderate price increases and slow economic growth will lead to only slight growth, if any, in natural gas demand during 1983-84. Total natural gas consumption in Tennessee will increase in 1983-84 from its current level of 2,076 million therms to 2,094 million therms — less than a 1 percent increase.

After an absolute decline of 1 percent in gasoline demand during 1982, consumption should increase (around 1 percent) during 1983-84, although much more slowly than in previous years.

Long-term Growth

Because of the many uncertainties regarding domestic energy regulations, international politics, and possible technological breakthroughs, predicting the long-term growth path of energy prices and consumption is quite difficult. Nevertheless, the changes that have occurred in the energy sector during the past decade now appear to be providing some long-term trends and changes that are worthy of mention. First, the growth of electricity consumption during the next decade will average around 2 percent per year. This is dramatically different from the 7 percent annual consumption growth rate in the 1960's and significantly lower than the 3 percent annual consumption growth rate of the 1970's.

Second, because coal is an abundant natural resource whose ownership structure is widely dispersed, coal prices will rise only very modestly during the decade of the 1980's. Most of whatever price increases do occur will come from electric utilities bidding up the price of low-sulphur coal. Finally, more efficient automobiles and a fuel-conscious public will bring down the rate of growth of gasoline demand in Tennessee to around 1 percent for the 1980's (compared with 3.6 percent for 1972-78). Still left in the whirlwind of uncertainty in the energy sector is the long-run outlook for prices and consumption of natural gas.

Currently, the price of a large portion of natural gas supplies is scheduled to be deregulated in 1985, with a smaller portion scheduled for deregulation in 1987. If this time frame is brought forward, as the Reagan Administration desires, natural gas prices will escalate more quickly than forecast here. Furthermore, the degree to which prices will rise upon deregulation is very uncertain and is made very difficult to determine because of the complicated regulatory structure currently in place.

GOVERNMENT

In the last decade the government sector grew dramatically, and the outlook for the growth of this sector in Tennessee has changed just as dramatically over the past two years. After a long period of stability, federal government employment increased from 52,000 to 76,700 between 1973 and 1980. The main reason for this increase was the start-up of TVA's ambitious nuclear plant construction program in the state. However, since 1979 lower power demand forecasts have led the TVA Board to defer the construction of eight of these nuclear units, leading to substantial layoffs of TVA construction personnel. Consequently, federal employment is expected to decline about 14 percent to 65,900 in 1984.

At the same time, the long-term growth trend of state and local government employment also abruptly shifted downward. State revenue expansion, which had been averaging 13 percent a year, grew at only a 5.4 percent annual compound rate between 1980 and 1982 (see Table 2). Similarly, the annual growth of local revenues slowed from 11.0 percent to 9.1 percent. This slowdown was primarily caused by the drastic drop in the year-to-year growth of federal intergovernmental assistance. In the case of the state, federal aid grew 1.6 percent a year during 1980-82 – one-tenth the rate of the previous four-year period. As can be seen in Table 2, federal aid to local governments declined in absolute terms after fiscal year 1980. At the same time there was an abrupt slowdown in the growth of state assistance to local government. Between 1976 and 1980, this grew at a 10.2 percent annual rate, and after 1980, at a rate of only 3 percent. This fall-off in the expansion of intergovernmental aid has put more pressure on local own-source revenues. Local governments increased revenue collections from local sources at a 13.8 percent annual rate after 1980 – somewhat more than the 11.3 annual rate of the previous four-year period. Most of this increase came from higher property tax rates enacted during fiscal years 1979 and 1980.

The recessions of 1980 and 1981-82 also contributed to lowering the growth of state and local revenues.

Since the Tennessee tax system is so dependent on ad valorem sales taxes, the decline in inflation accompanying the present recession directly translated into the slower year-to-year growth of

TABLE 2

HISTORICAL GROWTH OF TENNESSEE STATE AND LOCAL GOVERNMENT EXPENDITURES
FY 1972-1982
(In Millions of Current Dollars)

	State Revenues			Local Revenues			
Fiscal Year	**Total**	**Own Source**	**Federal Aid**	**Total**	**Own Source**	**State Aid**	**Federal Aid**
1972	$1,364.0	$ 979.7	$ 384.3	$1,379.0	$ 830.0	$ 451.8	$ 97.2
1976	2,105.0	1,442.3	662.7	2,177.9	1,283.2	648.8	245.9
Annual Compounded Percent Change 1972-1976	11.5	10.2	14.6	12.1	11.5	9.5	26.1
1980	3,426.2	2,215.6	1,210.6	3,308.7	1,971.4	958.2	379.1
Annual Compounded Percent Change 1976-1980	13.0	11.3	16.3	11.0	11.3	10.2	11.4
1982	3,808.2	2,559.6	1,247.6	3,934.7	2,551.4	1,016.4	366.9
Annual Compounded Percent Change 1980-1982	5.4	7.5	1.6	9.1	13.8	3.0	-1.6

SOURCE: Tennessee Econometric Model, Historical Data and December 1982 solution.

"As the economy rebounds, national income will grow and unemployment will fall, and both these factors will stimulate the demand for agricultural products."

tax collections. However, this lower rate of inflation acts as a double-edged sword. Also, it will probably lead to lower expenditure growth in the future because cost-of-living increases and other annual cost adjustments need not be as large each year. Hence, state and local government's own-source tax revenues may continue to buy as much in real terms as they have in the past.

However, their total budgets will still be smaller in real dollars because of the fall-off in federal intergovernmental aid. The recent shift in federal priorities away from domestic programs toward defense spending and tax relief has led to a major lowering of the forecast for the future growth of the government sector.

State and Local Government

It is not expected that employment in state and local government will grow at all during the next nine years. For the past two years this sector experienced job losses at rates three times greater than for the rest of the nonagricultural portion of the state's economy. For the next four years, annual job losses are forecast to continue, while employment in the rest of the state's economy is expected to increase. Hence, the importance of the public sector as a source of jobs and income is also anticipated to decline. This sector's share of all nonagricultural jobs is forecast to fall from 14 percent in 1980 to 11.5 percent in 1990. By contrast, the public sector grew in importance over the past ten years, so this forecast indicates a major change in the long-run growth trend of government in Tennessee. This new trend is likely to come about unless there is a major shift in priorities at the federal level or a substantial restructuring of the state's tax system in the future.

Given present trends, fewer person-days will be available to provide educational, law enforcement, and other government services in the future. More efficient government operation may maintain existing levels of service in some cases, but it is unlikely that efficiency improvements can offset all of the expected losses of manpower that are likely to occur in the future, especially in person-to-person services such as classroom instruction, social work, and counseling.

AGRICULTURE

For many farmers who lived through the economic hard times of the 1930's, there were elements of *deja vu* in 1982. The general economy is in recession. Prices at the farm level are depressed by bumper crops and large stockpiles of nonperishables. Farm export markets have contracted and may be weakened further by new worldwide restrictive trade policies. The 1983 outlook for the agricultural sector is mixed.

Over the next year, gross farm income at the national level may rise 1 or 2 percent. Receipts from cash crops are expected to fall, but this will be offset by increased receipts from livestock products and direct government payments.

However, any gains in gross income will be offset, at least partially, by increased production expenses. Real output of agricultural products in Tennessee, after adjusting for inflation, should grow by about 1.5 percent in 1983. This is somewhat slower than the predicted rate of growth of 2.7 for real gross state product.

Several factors will contribute to the mixed outlook for the agricultural sector in 1983. On the demand side, economic recovery is in the offing. As the economy rebounds national income will grow and unemployment will fall, and both these factors will stimulate the demand for agricultural products. Per capita food consumption will increase by no more than one percent in 1983. Crop product food consumption will increase, but consumption of animal product foods will decrease.

The demand for agricultural exports will face two major hurdles in 1983. First, many foreign countries that traditionally buy U.S. crops are facing economic recession. Accordingly, a critical determinant of the 1983 level of agricultural exports will be how quickly foreign nations pull out of the current recession. Second, increased concern mounted in 1982 about restrictive trade practices by Japan and the European Economic Community. In 1983, this concern may manifest itself in an escalation of trade barriers at home and abroad. This could significantly reduce sales of agricultural products abroad. Alternatively, debate between the United States and its trading partners over trade restrictions may result in a reduction of import tariffs and/or the elimination of import quotas on U.S. agricultural products. In the event that trade restrictions are removed, the market for agricultural products will grow and domestic agricultural output will increase.

On the supply side, the farmer will face some higher and some lower input costs in 1983. Interest rates have fallen from their 1982 historical high and are not expected to increase. Decreased interest rates for 1983 will reduce the cost of purchases of farm machinery and other large capital projects. Prices of fertilizer, pesticides and herbicides, and energy will be higher, though only moderately so. Together, the lower interest rate costs and moderating input expenses suggest that the principal squeeze on farm income for 1983 will come from slow demand growth. ■

REVISED TENNESSEE NET MIGRATION ESTIMATES: 1970-1980

Jan C. Jacobsen
Donald W. Hastings

(Editors note: As a result of recent information from the U.S. Bureau of the Census, migration estimates published in the Fall 1982 **Survey** *have been revised substantially downward. Thus numbers in this article supersede migration data which appeared in the previous issue.)*

In the Fall issue of the **Survey** (in our article, "Tennessee Net Migration Estimates: 1970-1980), we noted that the "net migration estimates should be evaluated with a consideration of the effects of census enumeration errors in the 1970 and 1980 Censuses" (p. 4). Further, it was our understanding that the 1970 undercount was about 4 percent for the South and that errors in coverage were not yet available for the 1980 Census. We also indicated that the technique used in combination with the 1970 undercount would yield underestimates in net migration rates. Since the release of these preliminary estimates, we have received new information from the U.S. Bureau of the Census which has made it possible to provide revised migration information.

This report examines the revised estimated net migration rates between 1970 and 1980 by age and sex for the state and its nine Development Districts. To correct for the 1970 Census undercount we followed three steps. First, we adjusted the 1970 Tennessee population counts by age and sex, using the United States age and sex percentages of undercount, assuming that the age-sex pattern of undercount noted for the United States applied to the state (U. S. Bureau of the Census, 1983). Second, we calculated the proportionate age and sex distribution for the state based upon the adjusted counts. Third, we applied this age- and sex-proportionate distribution to revised 1970 Tennessee population control totals by sex (U.S. Bureau of the Census, 1983a).

Revision of Net Migration Estimates

Tennessee net migration estimates are revised, adjusting for estimated undercounts by age and sex in the 1970 Census. The undercount for Tennessee was approximately 3.5 percent. Adjusting for the undercount increases the 1970 population count, which in turn reduces the mortality estimation and thereby increases the estimated population surviving to 1980. The increase in survivors serves to deflate previously estimated in-migration and increases previous estimates of out-migration. The magnitude of the change in net migration estimates is responsive to levels of undercounts by age and sex. The male net migration figures are more volatile than those of the females, and the undercount was larger for males than females in all age groups, with the largest undercount occurring between cohorts 35 to 64 years of age in 1980.

Correcting the 1970 population affects net migration estimates by markedly lowering the magnitude of the values, but does not generally alter the pattern discussed in the Fall issue. While in-migration is not as extensive as noted earlier, it retains the same age-specific pattern for males and females. The 1970's also remain a period of turnaround from out-migration to in-migra-

Jan C. Jacobsen is a graduate student in Sociology at The University of Tennessee, Knoxville. His major areas of interest are demography, epidemiology, and social stratification.

Donald W. Hastings is Professor of Sociology at The University of Tennessee, Knoxville. His research focuses on state trends in fertility, mortality, migration and nuptuality. He also is interested in religion and ethnicity as factors influencing population processes.

tion for the state. The Memphis Delta District is the only district to show heavy out-migration for males and females.

Total Net Migration

The revised total net migration is 43.6 percent lower than our initial estimate (220,530 in the period 1970-1980). This figure is approximately 4.8 percent of the 1980 Tennessee population and accounts for less than one-half of the increase in population size from 1970 to 1980.

Pattern by Age

The patterns of net migration by age generally parallel those obtained in our earlier analysis. The revised figures show in-migration across all ages with ages 10-19, 35-54, and 75 and over marked by the highest levels of in-migration. The ages 20-30 and 55-64 tend to have lower rates of in-migration.

Pattern by Sex

Females show in-migration across all ages, and similarly, males show in-migration over all ages except for ages 25-29. Adjusting for the 1970 undercount for males and females generally reduces the magnitude of in-migration at each age while preserving the previously reported pattern. The reduction is sharpest for males between the ages 30-64, since this group had the highest percentage of undercount.

Pattern Across Development Districts

In general, the same patterns of migration were noted for each of the Development Districts, with the exception of the Memphis Delta District. Table 1 shows all Development Districts had net in-migration ranging from a high of 77,846 in the Mid-Cumberland District to a low of 9,609 in the Northwest District. A comparison of the original and revised total estimated net migration figures shows that the ranking remains roughly the same, except for a reversal of the Southwest and Northwest Districts. One instance clearly demonstrates that our original estimates were markedly high. The Memphis Delta District switched from our estimate showing approximately 1,500 in-migrants to one showing 33,000 out-migrants.

Summary

Our revised estimates of net migration suggest that the economic and life-course forces affecting migration referred to in the Fall **Survey** remain strong factors affecting migration into the "Sunbelt" and Tennessee. The patterns of net migration remain about the same, but with lower age/sex-specific rates. Tennessee remains a destination for many people and an area of return migration.

The revised estimates do not take into account the "suggested 2 percent overcount" in the 1980 Census. Until the corrections for the 1980 Census are published, the revised estimates should be interpreted with caution. However, one can reasonably assume, in light of the census errors, that Tennessee's future growth will largely result from in-migration in response to economic growth and development.

These net migration estimates are based on a life-table survival rate method. There are a number of other techniques for generating net migration rates. Each will produce slightly different values, based upon the assumptions made. It is likely that these net migration rates would be improved slightly by taking into account the reductions in mortality that occurred between 1970 and 1980. Improvements in mortality have affected the younger ages, but most noticeably those over 65. We would assume that net migration rates in the older ages are therefore somewhat overestimated. ■

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TABLE 1

REVISED AND ORIGINAL DISTRICT TOTAL ESTIMATED NET MIGRATION, 1970-1980

District	Revised	Original
Mid-Cumberland	77,846	112,169
East Tennessee	64,643	95,169
Southeast	27,988	46,128
Upper Cumberland	26,710	35,166
First Tennessee	19,011	32,771
South Central	17,195	28,494
Southwest	10,327	17,858
Northwest	9,609	18,808
Memphis Delta	-32,799	1,537

POPULATION COUNTS, 1970 AND 1980, NET MIGRATION ESTIMATES AND MIGRATION RATES, 1970-1980, BY AGE FOR MALES AND FEMALES

(Revised, Winter 1983)

	Male				Female				Total		
Age	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	Net Migration
STATE											
Under 1	36,357	35,577	–	–	34,620	33,757	--	--	70,977	69,334	--
1-4	142,160	131,791	–	–	135,033	124,963	--	--	277,193	256,754	--
5-9	203,463	179,209	–	–	193,770	170,719	--	--	397,233	349,928	--
10-14	209,822	189,403	12,170	0.060	199,737	180,537	11,777	0.061	409,559	369,940	23,947
15-19	199,934	219,497	17,731	0.085	190,305	210,756	17,742	0.089	390,239	430,253	35,473
20-24	162,242	209,291	2,759	0.014	172,378	214,122	15,544	0.082	334,620	423,413	18,303
25-29	140,522	190,309	-5,439	-0.034	140,504	197,678	8,805	0.051	281,026	387,987	3,366
30-34	118,155	175,239	16,595	0.121	121,627	181,397	10,636	0.076	239,782	356,636	27,231
35-44	228,222	259,838	9,405	0.082	241,699	274,003	16,500	0.138	469,921	533,841	25,905
45-54	221,894	221,088	8,647	0.040	236,794	244,278	11,529	0.049	458,688	465,366	20,176
55-64	181,247	197,720	8,747	0.046	204,436	232,360	13,287	0.060	385,683	430,080	22,034
65-74	105,615	138,519	10,200	0.079	137,494	184,508	13,109	0.076	243,109	323,027	23,309
75-84	56,787*	56,489	5,937	0.117	90,803*	96,629	8,868	0.101	147,590*	153,118	14,805
85 & over	--	12,630	1,389	0.123	--	28,813	4,993	0.209	–	41,443	6,382
FIRST TENNESSEE											
Under 1	3,345	2,664	–	–	3,186	2,615	--	--	6,531	5,279	--
1-4	13,231	10,864	–	–	12,479	10,397	--	--	25,710	21,261	--
5-9	17,671	16,303	--	–	16,713	15,809	--	--	34,384	32,112	--
10-14	18,000	17,627	1,161	0.066	16,899	16,556	972	0.058	34,899	34,183	2,133
15-19	17,111	18,478	950	0.053	16,462	18,086	1,443	0.085	33,573	36,564	2,393
20-24	14,482	17,153	-571	-0.034	16,090	17,700	896	0.054	30,572	34,853	325
25-29	14,097	16,121	-651	-0.045	13,596	16,642	291	0.018	27,693	32,763	-360
30-34	11,810	16,176	1,980	0.143	11,792	16,743	787	0.058	23,602	32,919	2,767
35-44	22,228	26,273	1,080	0.094	23,139	26,733	1,746	0.150	45,367	53,006	2,826
45-54	21,812	22,094	1,212	0.058	22,574	23,755	1,379	0.051	44,386	45,849	2,591
55-64	16,992	19,758	879	0.046	18,443	22,578	1,587	0.075	35,435	42,336	2,466
65-74	9,268	13,002	769	0.062	11,734	17,023	1,515	0.097	21,002	30,025	2,284
75-84	5,087*	5,001	565	0.127	7,309*	8,431	941	0.125	12,396*	13,432	1,506
85 & over	--	1,112	105	0.104	--	2,401	484	0.257	–	3,513	589
EAST TENNESSEE											
Under 1	6,204	5,948	--	--	5,905	5,636	--	--	12,109	11,584	--
1-4	24,759	22,734	--	--	23,452	21,446	--	--	48,211	44,180	--
5-9	35,423	32,328	--	--	33,466	30,337	--	--	68,889	62,665	--
10-14	36,697	34,850	4,114	0.117	34,733	33,248	4,040	0.121	71,430	68,098	8,154
15-19	34,864	39,450	4,322	0.119	34,414	38,314	4,972	0.143	69,278	77,764	9,294
20-24	28,952	38,759	2,617	0.076	31,487	38,708	4,172	0.122	60,439	77,467	6,789
25-29	25,242	34,862	700	0.024	25,181	35,790	1,631	0.052	50,423	70,652	2,331
30-34	21,405	32,814	4,485	0.182	21,928	33,482	2,286	0.092	43,333	66,296	6,771
35-44	41,280	49,939	4,702	0.227	44,092	51,726	5,402	0.251	85,372	101,665	10,104
45-54	41,134	41,664	3,040	0.078	44,360	46,106	3,517	0.082	85,494	87,770	6,557
55-64	33,124	37,449	2,036	0.057	37,024	44,790	3,522	0.085	70,148	82,239	5,558
65-74	19,154	25,803	1,886	0.078	24,175	33,992	2,758	0.088	43,329	59,795	4,644
75-84	9,659*	10,345	1,177	0.128	15,187*	17,472	2,041	0.132	24,846*	27,817	3,218
85 & over	--	2,181	269	0.140	--	4,948	964	0.241	--	7,129	1,233
SOUTHEAST											
Under 1	3,944	3,891	--	--	3,758	3,616	--	--	7,702	7,507	--
1-4	15,410	14,763	--	--	14,737	13,718	--	--	30,147	28,481	--
5-9	21,768	20,130	--	--	20,606	19,021	--	--	42,374	39,151	--
10-14	22,443	20,800	1,581	0.073	21,316	19,889	1,493	0.072	43,759	40,689	3,074
15-19	20,193	23,357	1,774	0.080	19,972	22,602	2,073	0.097	40,165	45,959	3,847
20-24	15,543	21,638	-421	-0.021	18,284	23,114	1,915	0.096	33,827	44,752	1,494
25-29	15,284	20,202	467	0.030	15,647	21,244	1,411	0.077	30,931	41,446	1,878
30-34	12,978	19,268	4,075	0.273	13,532	19,976	1,852	0.119	26,510	39,244	5,927
35-44	25,493	28,862	1,475	0.117	26,861	30,465	1,786	0.134	52,354	59,327	3,261
45-54	23,591	24,567	842	0.035	25,593	27,026	1,155	0.044	49,184	51,593	1,997
55-64	19,215	21,134	1,116	0.055	22,328	24,977	1,302	0.054	41,543	46,111	2,418
65-74	10,890	14,312	910	0.067	14,966	19,865	1,134	0.060	25,856	34,177	2,044
75-84	5,539*	5,800	588	0.112	9,184*	10,262	709	0.074	14,723*	16,062	1,297
85 & over	--	1,213	117	0.106	--	3,043	634	0.263	--	4,256	751
UPPER CUMBERLAND											
Under 1	1,666	1,815	--	--	1,588	1,720	--	--	3,254	3,535	--
1-4	6,764	6,814	--	--	6,413	6,426	--	--	13,177	13,240	--
5-9	9,608	9,392	--	--	9,023	8,811	--	--	18,631	18,203	--
10-14	9,901	9,997	1,621	0.170	9,369	9,555	1,585	0.176	19,270	19,552	3,206
15-19	9,732	11,474	1,947	0.199	9,016	10,936	1,938	0.207	18,748	22,410	3,885
20-24	8,033	10,733	999	0.105	8,046	10,175	857	0.095	16,079	20,908	1,856
25-29	6,729	9,092	-421	-0.053	6,548	9,070	123	0.015	13,277	18,162	-298
30-34	5,789	8,813	970	0.148	5,715	9,027	1,064	0.165	11,504	17,840	2,034
35-44	10,892	13,791	1,714	0.308	11,201	14,279	2,276	0.408	22,093	28,070	3,990
45-54	11,121	11,691	1,634	0.162	11,581	12,426	1,702	0.158	22,702	24,117	3,336
55-64	10,077	11,233	1,796	0.190	10,992	12,856	2,179	0.204	21,069	24,089	3,975
65-74	6,586	8,846	1,500	0.204	7,753	10,819	1,578	0.170	14,339	19,665	3,078
75-84	3,893*	3,779	627	0.198	5,313*	5,614	665	0.134	9,206*	9,393	1,292
85 & over	--	909	138	0.179	--	1,612	218	0.156	–	2,521	356

*Note: This number is the 75 and over count for 1970.

POPULATION COUNTS, 1970 AND 1980, NET MIGRATION ESTIMATES AND MIGRATION RATES, 1970-1980, BY AGE FOR MALES AND FEMALES (Continued)

(Revised, Winter 1983)

	Male				Female				Total		
Age	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	1970-80 Net Migration	1970-80 Migration Rates	1970 Population	1980 Population	Net Migration
MID-CUMBERLAND											
Under 1	7,188	7,635	–	–	6,844	7,230	–	–	14,032	14,865	–
1-4	28,004	27,767	–	–	26,582	26,399	–	–	54,586	54,166	–
5-9	41,319	36,782	–	–	39,348	35,230	–	–	80,667	72,012	–
10-14	42,397	38,139	3,185	0.077	40,438	36,334	3,077	0.078	82,835	74,473	6,262
15-19	41,113	46,555	5,555	0.132	38,506	45,376	6,182	0.153	79,619	91,931	11,737
20-24	36,864	48,885	7,085	0.175	37,048	49,364	9,147	0.239	73,912	98,249	16,232
25-29	30,058	43,687	3,321	0.091	29,438	45,109	6,865	0.186	59,496	88,796	10,186
30-34	25,231	39,082	2,928	0.099	25,476	40,119	3,383	0.116	50,707	79,201	6,311
35-44	48,212	56,630	2,919	0.119	49,544	58,824	4,791	0.191	97,756	115,454	7,710
45-54	44,164	46,925	1,846	0.040	46,044	50,722	2,927	0.061	90,208	97,647	4,773
55-64	34,333	39,130	1,422	0.037	39,201	45,634	2,976	0.069	73,534	84,764	4,398
65-74	19,348	26,317	2,159	0.089	26,075	35,745	2,838	0.086	45,423	62,062	4,997
75-84	10,463*	10,576	1,315	0.142	17,694*	18,995	2,352	0.141	28,157*	29,571	3,667
85 & over	–	2,452	381	0.183	–	5,834	1,192	0.256	–	8,286	1,573
SOUTH CENTRAL											
Under 1	2,275	2,435	–	–	2,162	2,171	–	–	4,437	4,606	–
1-4	9,459	8,856	–	–	8,661	8,295	–	–	18,120	17,151	–
5-9	13,172	11,759	–	–	12,751	11,163	–	–	25,923	22,922	–
10-14	14,068	13,041	1,402	0.107	13,095	12,038	1,286	0.101	27,163	25,079	2,688
15-19	12,677	14,323	1,280	0.092	12,002	13,713	1,023	0.078	24,679	28,036	2,303
20-24	8,693	12,143	-1,643	-0.133	9,212	11,761	-1,240	-0.104	17,905	23,904	-2,883
25-29	8,457	10,914	-1,408	-0.166	8,585	11,103	-780	-0.085	17,042	22,017	-2,188
30-34	7,806	10,403	1,955	0.238	7,831	10,813	1,706	0.202	15,637	21,216	3,661
35-44	15,371	17,310	1,648	0.220	15,973	18,315	2,241	0.293	31,344	35,625	3,889
45-54	15,870	15,431	1,199	0.084	16,574	16,533	1,222	0.079	32,444	31,964	2,421
55-64	13,701	14,757	1,279	0.094	14,944	16,773	1,505	0.098	28,645	31,530	2,784
65-74	7,937	10,865	1,202	0.124	10,064	13,877	1,440	0.115	18,001	24,742	2,642
75-84	4,553*	4,423	624	0.164	7,023*	7,229	805	0.125	11,576*	11,652	1,429
85 & over	–	955	54	0.059	–	2,237	395	0.214	–	3,192	449
SOUTHWEST											
Under 1	1,616	1,705	–	–	1,537	1,641	–	–	3,153	3,346	–
1-4	6,481	6,456	–	–	6,135	6,200	–	–	12,616	12,656	–
5-9	9,279	8,165	–	–	8,961	7,766	–	–	18,240	15,931	–
10-14	9,595	8,672	658	0.071	9,198	8,447	811	0.090	18,793	17,119	1,469
15-19	9,034	9,638	464	0.049	9,164	9,972	1,035	0.113	18,198	19,610	1,499
20-24	6,297	8,372	-1,031	-0.117	7,119	9,145	10	0.001	13,416	17,517	-1,021
25-29	5,462	7,816	-962	-0.158	5,625	8,214	-853	-0.121	11,087	16,030	-1,815
30-34	4,782	7,244	1,155	0.220	4,856	7,516	490	0.088	9,638	14,760	1,645
35-44	9,560	10,773	966	0.211	10,221	11,420	1,168	0.246	19,781	22,193	2,134
45-54	10,073	9,775	993	0.113	10,781	10,819	1,044	0.106	20,854	20,594	2,037
55-64	9,463	9,268	790	0.093	10,690	10,872	955	0.096	20,153	20,140	1,745
65-74	6,343	7,516	682	0.099	7,750	9,826	812	0.090	14,093	17,342	1,494
75-84	3,629*	3,434	398	0.131	5,479*	5,373	426	0.086	9,108*	8,807	824
85 & over	–	804	86	0.119	–	1,667	230	0.159	–	2,471	316
NORTHWEST											
Under 1	1,882	1,826	–	–	1,794	1,683	–	–	3,676	3,509	–
1-4	7,357	6,701	–	–	6,958	6,301	–	–	14,315	13.002	–
5-9	10,624	9,254	–	–	9,889	8,604	–	–	20,513	17,858	–
10-14	10,994	9,845	691	0.065	10,339	9,391	712	0.072	21,333	19,226	1,403
15-19	10,461	11,204	699	0.065	10,054	10,861	1,038	0.101	20,515	22,065	1,737
20-24	7,930	9,856	-891	-0.087	8,403	9,831	-419	-0.042	16,333	19,687	-1,310
25-29	6,958	8,381	-1,753	-0.228	6,831	8,680	-1,265	-0.152	13,789	17,061	-3,018
30-34	5,858	8,168	498	0.074	6,005	8,646	359	0.053	11,863	16,814	857
35-44	11,608	12,898	687	0.124	12,269	13,600	1,100	0.188	23,877	26,498	1,787
45-54	12,679	11,322	794	0.075	14,132	12,775	1,109	0.095	26,811	24,097	1,903
55-64	12,755	11,683	1,124	0.106	14,126	14,154	1,226	0.094	26,881	25,837	2,350
65-74	8,365	10,333	1,252	0.137	10,465	13,252	1,442	0.122	18,830	23,585	2,694
75-84	4,794*	4,448	444	0.110	7,462*	7,194	514	0.076	12,256*	11,642	958
85 & over	–	973	24	0.025	–	2,181	224	0.114	–	3,154	248
MEMPHIS DELTA											
Under 1	8,237	7,658	–	–	7,846	7,445	–	–	16,083	15,103	–
1-4	30,695	26,836	–	–	29,616	25,781	–	–	60,311	52,617	–
5-9	44,599	35,096	–	–	43,013	33,978	–	–	87,612	69,074	–
10-14	45,727	36,432	-2,243	-0.050	44,350	35,079	-2,199	-0.051	90,077	71,511	-4,442
15-19	44,749	45,018	742	0.016	40,715	40,996	-1,863	-0.042	85,464	86,014	-1,121
20-24	35,448	41,752	-3,362	-0.076	36,689	44,324	210	0.005	72,137	86,076	-3,152
25-29	28,235	39,234	-4,698	-0.135	29,053	41,823	1,390	0.038	57,288	81,057	-3,308
30-34	22,496	33,271	-1,461	-0.053	24,492	35,075	-1,292	-0.045	46,988	68,346	-2,753
35-44	43,578	43,398	-5,768	-0.266	48,399	48,641	-4,021	-0.167	91,977	92,039	-9,789
45-54	41,450	37,619	-2,951	-0.072	45,155	44,116	-2,550	-0.054	86,605	81,735	-5,501
55-64	31,587	33,308	-1,712	-0.048	36,688	39,726	-1,981	-0.047	68,275	73,034	-3,693
65-74	17,724	21,525	-118	-0.005	24,512	30,109	-404	-0.013	42,236	51,634	-522
75-84	9,170*	8,683	200	0.023	16,152*	16,059	413	0.026	25,322*	24,742	613
85 & over	–	2,031	216	0.118	–	4,890	653	0.154	–	6,921	869

*Note: This number is the 75 and over count for 1970.

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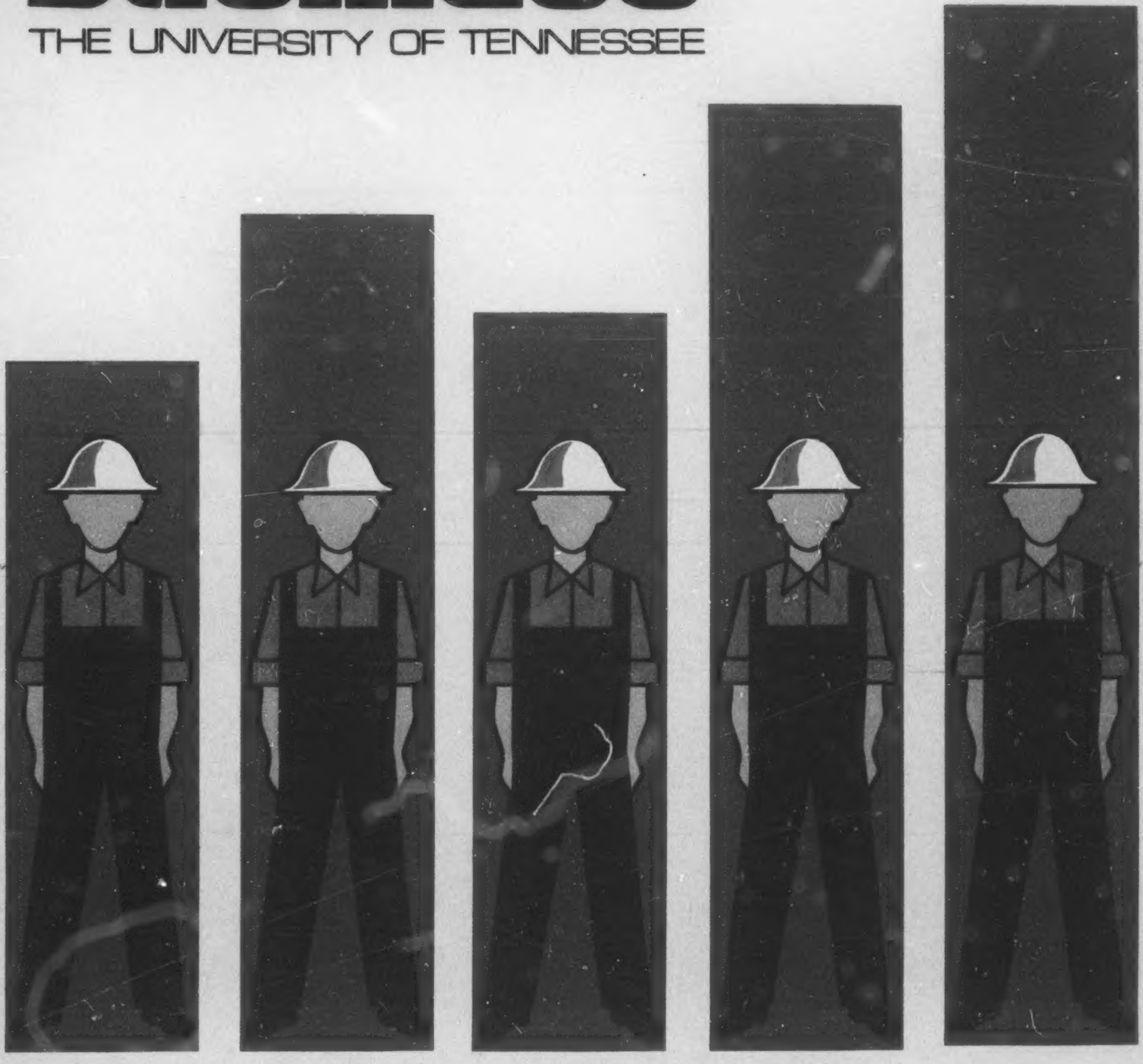
Employment Trends in Tennessee



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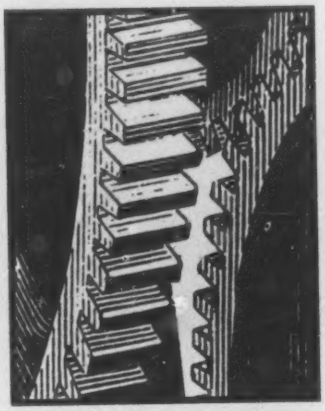

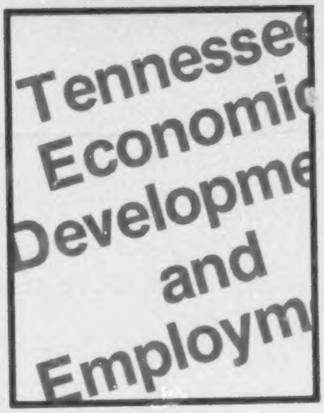
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CONSULTING EDITOR'S COMMENTS

Although the economic recovery now appears to be underway, many experts believe that unemployment will remain a serious problem for years to come. In Tennessee, the unemployment rate is forecast to continue to exceed the national average for the foreseeable future. This issue of the **Survey** examines why the unemployment picture has recently become so gloomy and whether this trend is likely to persist into the upcoming recovery period. Over the past few years, structural changes have occurred in the Tennessee economy that have made the past two recessions more severe than might have been expected. Last summer the Commissioner of Economic and Community Development asked the staff at the Center for Business and Economic Research to prepare a series of issue papers on the state's unemployment problem. Articles by CBER staff appearing in this **Survey** result in part from that research.

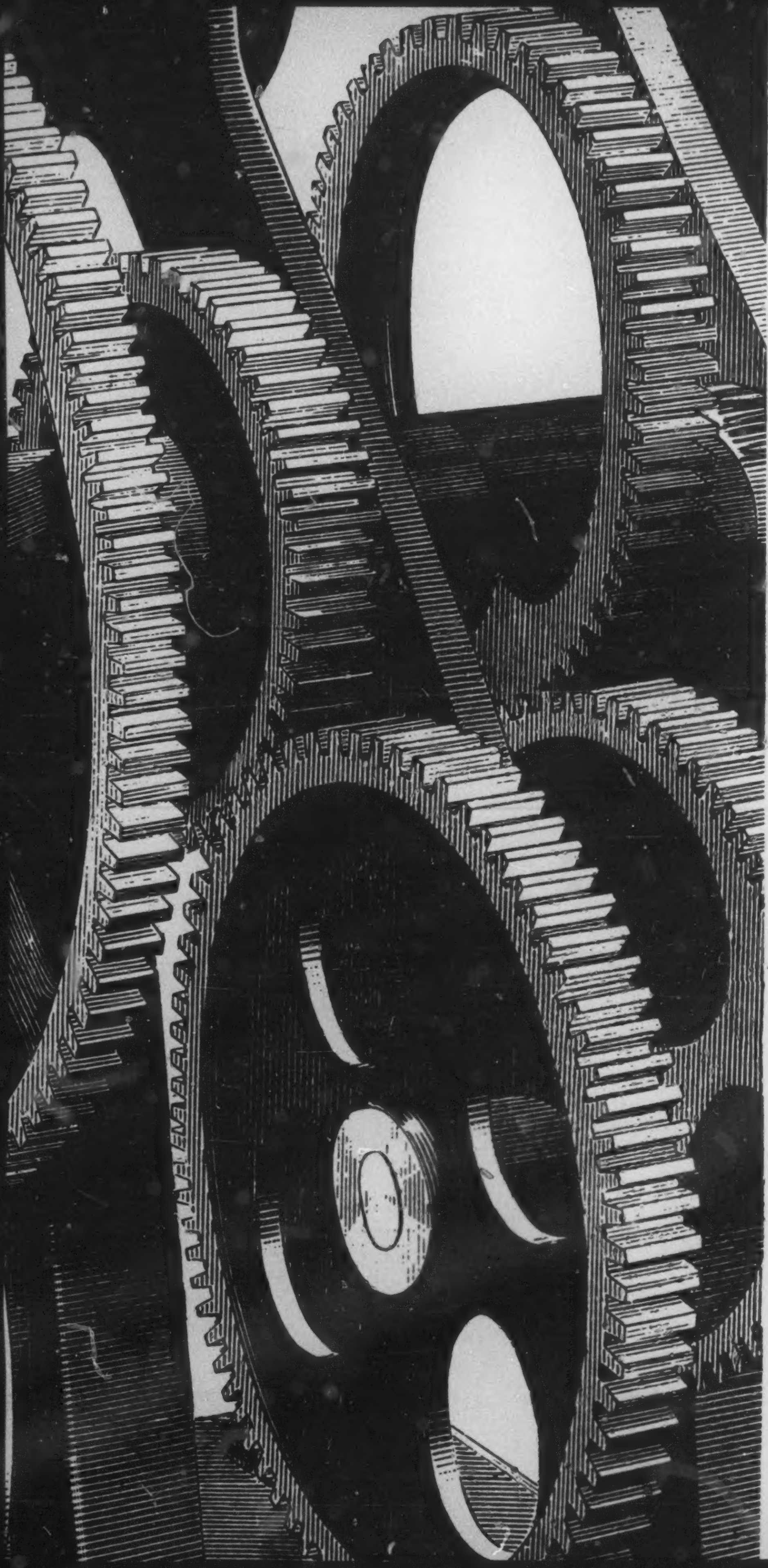
The first article, "Employment Trends in Tennessee," provides background on the past course of unemployment in Tennessee and a theoretical discussion of how unemployment arises in free labor markets. In his article, "U.S. Business Cycle Impacts on the Tennessee Economy," John W. Mayo attempts to answer whether the Tennessee economy leads or lags the national business cycle. As part of his analysis, he also investigates those sectors of the economy that appear to have contributed most to the high levels of unemployment that the state experienced in the last recession. In her article, "Diversity and Concentration in the Tennessee Economy: The Critical Sectors," Patricia D. Postma looks at whether the present structure of the economy contributed to the severity of the unemployment problem.

"Two Views from the State" surveys the action that the Tennessee Department of Economic and Community Development and the Tennessee Department of Employment Security are now taking or are contemplating taking in response to the major changes that have occurred recently in the Tennessee business climate.

Niles C. Schoening

Editor's Note: The idea for the theme of this issue was developed by Dr. Niles C. Schoening while he was on the Center for Business and Economic Research staff. His understanding of the state economy has been shaped by his six years in state government (which includes his term as Director of the Tennessee State Planning Office), followed by five years as research associate on the CBER staff at The University of Tennessee, Knoxville.

This issue of the **Survey** *stands as acknowledgement of his many years of contributions as an administrator, planner, researcher, and analyst for the various institutions and individuals involved in the economy of the State of Tennessee.*



Employment Trends in Tennessee

Niles C. Schoening

Since 1980, Tennessee has experienced unemployment rates that are higher than the national average and higher than for many other southeastern states. Articles in this issue of the **Survey** investigate the makeup of the state's economy in order to discover whether these comparatively high rates are likely to continue in the future or to decline as the recovery unfolds. More specifically, the questions to be investigated are what has caused Tennessee's unemployment rates to surge so far above the national rate recently and whether this new unemployment problem is merely a short-run, cyclical phenomenon that can be expected to correct itself quickly as the national economy recovers, or whether the state has re-entered a period of chronic labor surpluses.

The data provided in Figure 1 show the historical and forecast relationships between Tennessee's annual average unemployment rate and the corresponding figure for the United States. The cyclical nature of unemployment is clearly apparent, with increases occurring both nationally and in Tennessee during the recessions of 1969-70, 1974-75 and 1980-82. In the first two cases, unemployment peaked after the worst of the recession was past, with the rate in Tennessee moving below the national figure and falling rapidly during the recovery period. In the past downturn, however, Tennessee's unemployment rate exceeded the U.S. average in 1980 and 1981 and peaked at a rate far above the national figure in 1982. The current state economic outlook of the Center for Business and Economic Research calls for the rate to fall very slowly during the rest of the decade and remain above the national average until 1989.

State Trends

The path of Tennessee's unemployment rate for the past three years appears to indicate a return to an earlier pattern where the state rate consistently stayed above the national rate. In Figure 1 this pattern can be seen for the 1960s. It has been only since the 1969-70 downturn that Tennessee's economy has generated a lower annual rate of unemployment than the U.S. If the forecast is correct, Tennessee may be entering another period of chronic, long-term unemployment which will not quickly disappear with recovery. What factors currently operating in the Tennessee economy have led to this pessimistic forecast? Is the state's economy more sensitive to the national business cycle today than it was ten years ago? Is Tennessee's industrial structure more vulnerable now than in the past to shifts in interest rates, import competition, energy prices, and changes in consumer tastes? The articles in this issue of the **Survey** are aimed at shedding some light on these questions. The remainder of this section is devoted to a discussion of how unemployment is measured, how it is defined theoretically, and what types of unemployment occur in the economy.

What is Unemployment?

Employment and unemployment data for the United States are gathered each month from household surveys conducted by the Bureau of the Census (CPS Surveys). All those persons 16 years old and over who indicate that they held a job in the week prior to the survey are classified as employed. All those who did not have a job but were actively looking for work are classified as unemployed. Hence, to be classified as unemployed, a person must be available for work, and, if not on layoff, be actively seeking work. Persons may be unemployed for a variety of reasons. They may be on layoff from their jobs, have lost their jobs and are looking for work, have voluntarily quit and are seeking new jobs, or are entering or re-entering the labor force but have not yet found a job. As will be discussed later in more detail, even if the economy is operating close to capacity, there will still be a significant amount of unemployment because of natural turnover in the labor market.

This nationally administered CPS household survey sample is not large enough in Tennessee to generate a reliable monthly unemployment rate, so it is supplemented with data from the unemployment insurance and other files maintained by the Department of Employment Security. These files count jobs, while the CPS Survey counts individual workers. However, records from Employment Security exclude domestics, unpaid family workers, proprietors, the self-employed, and members or partners of unincorporated firms. Together, these groups make up an estimated 10 percent of the work force.

Combining a jobs-based file and a worker-based file to generate a monthly unemployment rate leads to a number of problems. First, an adjustment must be made to account for commuting across state lines. Second, estimates of multiple job holdings must be made, along with estimates of the number of workers not covered by unemployment insurance.

The final monthly unemployment rate is determined by averaging the results of the CPS survey for a six-month period with the monthly results of the jobs survey. Unlike in the larger states where the CPS survey subsample is large enough to give a reliable monthly state unemployment rate, Tennessee's estimate is based on both short-run labor demand factors (the job-based survey) and short- and long-run labor supply factors (the CPS household survey). As more information becomes available at year's end, the monthly figures and, consequently, the annual average are subject to significant revisions. Hence, in Tennessee, there is a considerable time lag before a complete picture of labor market conditions is available to policymakers.

Types of Unemployment

Economists have identified three different types of unemployment that can be expected to occur in a free market economy. They are called frictional, cyclical, and structural. These three types of unemployment can be differentiated in theory according to the circumstances under which they arise. Frictional unemployment can be considered a normal result of the workings of a free labor market, while cyclical unemployment arises because of periodic declines in overall aggregate demand. Structural unemployment, on the other hand, is related to long-term structural changes in the industrial, occupational, and demographic makeup of the economy. For various reasons, the adjustment processes of the labor market take much longer than usual, and long-term unemployment results.

Central to the new ideas about unemployment is the way people search for jobs. At any point in time, a sizable percentage of the population is voluntarily shifting from one job to another. The basic premise of this search approach is that an individual will actively seek work while he is not working. His decision to continue to remain unemployed is based on the costs and benefits of continued search. The cost of search while unemployed is the value of foregone earnings on the best immediately available job, and the benefit to search is the expected improvement in wage offers over the immediately available alternatives. Key to the theory of frictional unemployment is that a worker faces an array of possible wage offers, and since he does not possess perfect information about the market, he must spend time and money searching for the optimal situation. He will stop searching and accept a wage offer when the marginal benefit and the marginal cost of additional time spent searching are equal. The amount of time spent searching and, consequently, the level of frictional unemployment, varies with the business cycle — increasing during recessions when job offers are

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Niles C. Schoening, former Research Associate at the Center for Business and Economic Research, The University of Tennessee, Knoxville, is now Director, Center for Management and Economic Research, School of Administrative Science, the University of Alabama, Huntsville. He is also former director of the Tennessee State Planning Office.

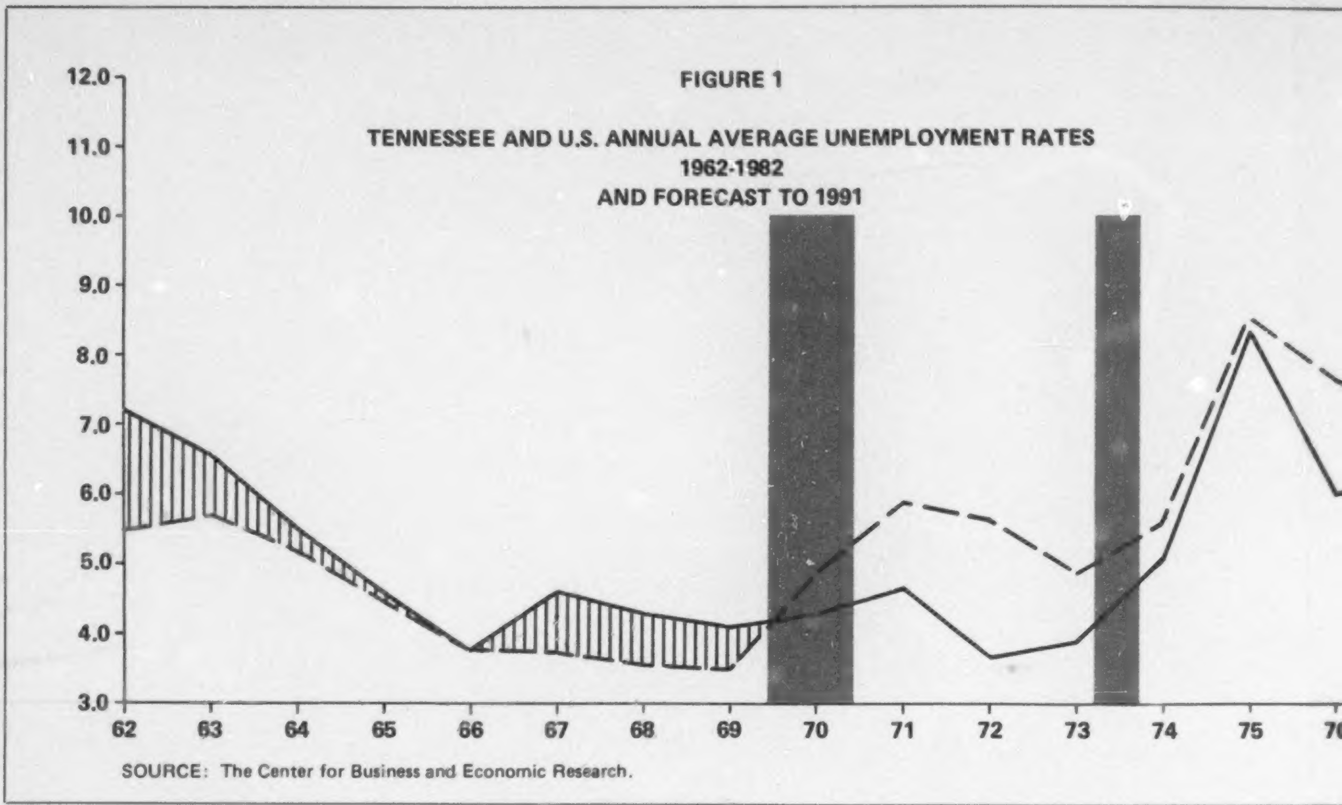


FIGURE 1

**TENNESSEE AND U.S. ANNUAL AVERAGE UNEMPLOYMENT RATES
1962-1982
AND FORECAST TO 1991**

SOURCE: The Center for Business and Economic Research.

scarce and falling during recovery periods.

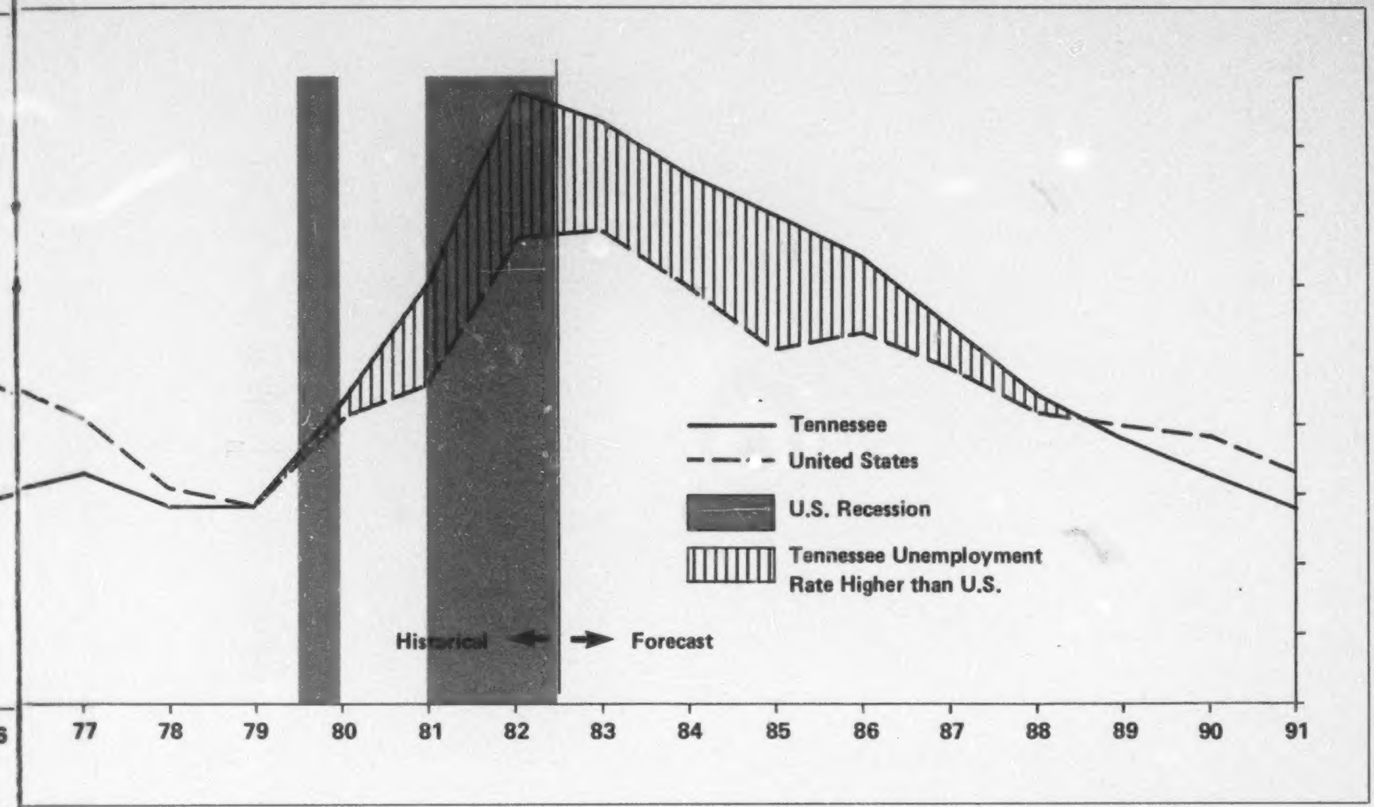
According to some economists, the calculus of job search has changed considerably over the past few years because of the extension of unemployment benefits to more workers and longer periods of eligibility. Although there is considerable debate over what the "natural" rate of unemployment is now, there appears to be some concensus that it has increased from the rates of the Fifties and Sixties. This shift in frictional unemployment has undoubtedly contributed to higher rates in Tennessee, but this trend by itself cannot explain why the state rate has remained above the U.S. figure for the past three years.

A government policy aimed at reducing the level of frictional unemployment would emphasize improving the availability of labor market information. In the case of state government, this policy might center around bettering the Job Service program in the Department of Employment Security and improving job counseling in the high schools and higher education institutions.

Cyclical Unemployment

Despite economic theories concerning search behavior, the public still associates the problem of unemployment with periodic fluctuations in the business cycle. The problem of cyclical unemployment focuses on the dilemma of the laid-off worker. Should he incur the cost of searching for a new job which might pay less than his previous wage, or hold off in the hope of being called back when the economy recovers? During recessions, job offers are harder to locate, so the laid-off worker may believe that searching is not worth the effort.

Some types of cyclical unemployment are quite natural and predictable and occur whether the economy is good or bad. Seasonal swings in unemployment exist in the Tennessee and national economies and operate independently of the business cycle. The seasonally and unseasonally adjusted monthly unemployment rates for the past three years are plotted in Figure 2. These data show that there is a surge in the monthly unemployment figures at the beginning of the year which stretches into early spring. This seasonal upswing is probably connected with the closedown of construction and agricultural employment across the state during the winter months. There is another increase in late spring and early summer associated with the end of the school year. In a typical year, one would expect the highest monthly unemployment rates to occur in Tennessee in mid-winter and late-spring, with the rate falling during the summer and fall. Seasonal adjustment of the unemployment rate eliminates this seasonal effect so that one can determine the underlying cyclical trend which reflects the broad swings in national business activity. This trend can be seen in both Figures 1 and 2 and, of course, it shows that the recessions of 1980 and 1981-82 are the main causes



of upsurge in unemployment in Tennessee.

There is little that state government can do to ameliorate high levels of cyclical unemployment. The burden of recession fighting falls to the federal government, where fiscal and monetary policies are available to restore the level of aggregate demand in the national economy. In the past, federal countercyclical policies rather quickly resulted in a reduction in unemployment in Tennessee, but as can be seen in Figure 1, recovery from the recession just ending is expected to take far longer. Many economists believe that large numbers of workers, some of whom were laid off as early as 1979, are unlikely ever to be called back to their former jobs. This brings us to structural unemployment, the most difficult type of unemployment to deal with from a public policy standpoint.

Structural Unemployment

Structural unemployment derives its name from the idea that it is caused by basic changes in the industrial, occupational, or demographic structure of the economy. For some reason, the normal adjustment processes of the labor market breaks down and long-term unemployment results. When demand declines for the products of whole industries, as was the case for Appalachian coal in the 1950's, enormous social costs are generated, and it is not surprising that labor markets take a long time to adjust. The decline of primary industries in a state or region leads to further employment losses in the services sector of the economy through the familiar multiplier process, and conditions can continue to deteriorate until the economy is stagnating at very low levels of output, with heavy out-migration and high unemployment.

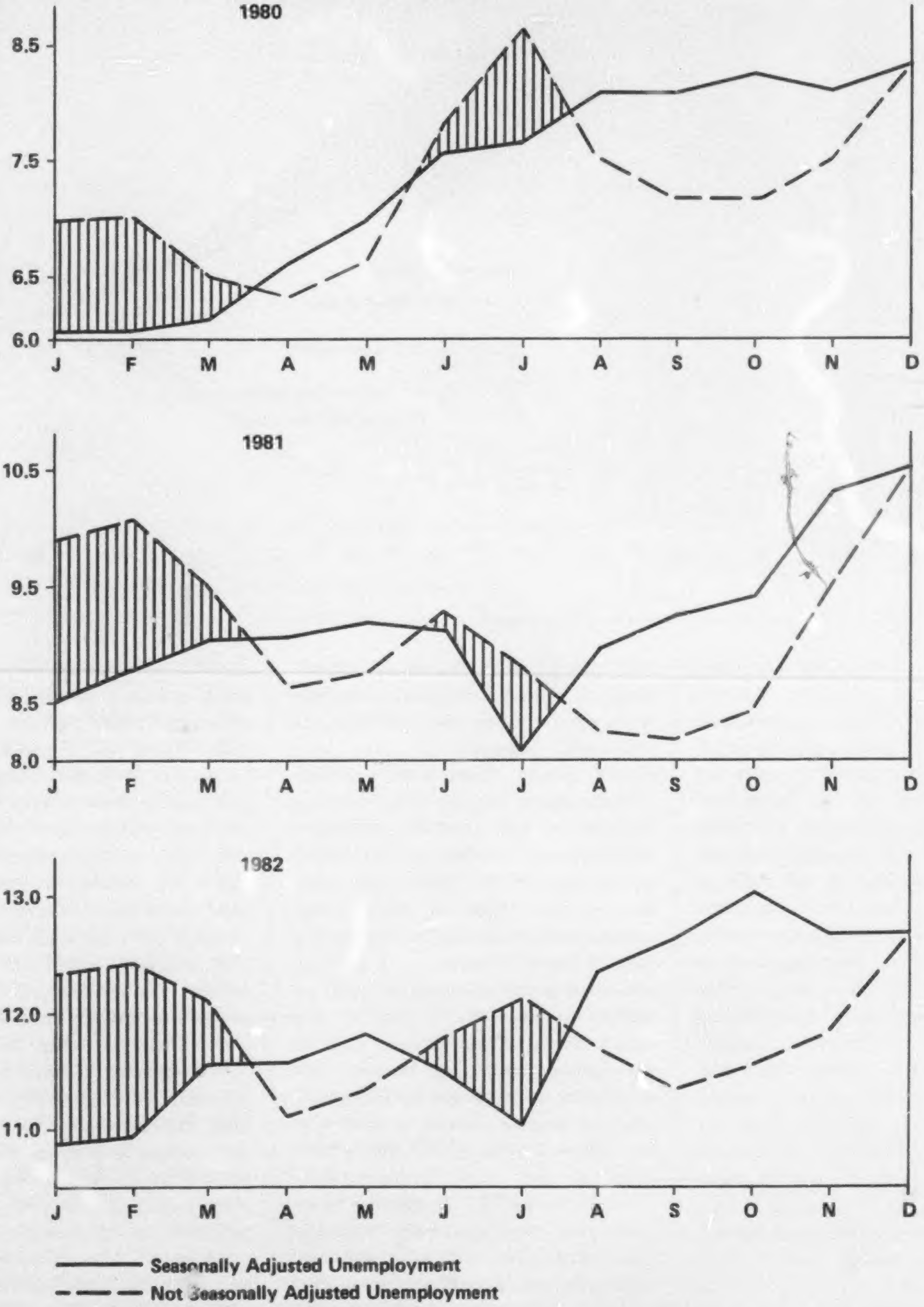
As Table 1 shows, Tennessee's labor force grew somewhat faster than the U.S. labor force between 1970 and 1980, but the state's labor force participation rate still lies below the U.S. average. This is an indication that much pressure remains from persons wanting to enter or re-enter the labor force, possibly causing higher unemployment rates. Because Tennessee's labor force has a somewhat higher proportion of female workers and, more particularly, women with young children, this would also tend to make the state's unemployment rate slightly higher since women enter and leave the labor market more frequently than men. There is little the state can do to alter this situation except to offer more services such as day care facilities and special counseling to women who wish to enter or re-enter the labor force.

If Tennessee is now faced with a structural unemployment problem related more to changes in industrial mix and occupational shifts than to demographic change, it will require a significant degree of long-run government action to reduce unemployment in the years ahead. Many workers who have lost their jobs in the last three years will require training and re-training for occupations that will be in high demand in the future. The key to overcoming

FIGURE 2

TENNESSEE SEASONAL UNEMPLOYMENT

1980-82



SOURCE: The University of Tennessee, Center for Business and Economic Research.

long-run structural unemployment is to have a well educated, adaptable labor force where workers can easily adjust to the new kinds of jobs being created in the economy.

TABLE 1

GROWTH AND COMPOSITION OF THE TENNESSEE LABOR FORCE, WITH COMPARISONS TO THE U.S., 1970 - 1980

	1980	1970	Percent Change
Tennessee	2,060,795	1,551,247	32.8
Labor Force Participation Rate	59.4%	53.4%	
Tennessee Labor Force Distribution (Percent)	100.0%	100.0%	
Male	56.9	61.6	
Female	43.1	38.4	
Female With Children Under 6	7.4	5.8	
U.S. Labor Force (In millions)	106.9	82.8	29.1
U.S. Labor Force Participation Rate	63.8%	60.4%	
U.S. Labor Force Distribution (Percent)	100%	100%	
Male	57.5%	61.8%	
Female	42.5%	38.2%	
Female With Children Under 6	6.1%	5.4%	

Source: U.S. Bureau of the Census, *Provisional Estimates of Social, Economic, and Housing Characteristics, 1980*, PHC80-S1-1 and Vol. I, *Characteristics of the Population, 1970, Tennessee, Pt. 44.*

TABLE 2

IMPROVEMENT IN THE EDUCATIONAL LEVEL OF THE TENNESSEE POPULATION AGED 25 OR OLDER, 1970 AND 1980, WITH COMPARISONS TO U.S. AVERAGES

Years of Schooling Completed		Number of Persons 1980	1970	Percent Change
Elementary (0 to 8 years)		745,083	850,864	- 12.4%
High School:	**1 to 3 years**	435,256	388,650	12.0%
	4 years	852,715	546,481	56.0%
College:	**1 to 3 years**	320,029	173,969	84.0%
	4 or more years	339,173	167,982	101.9%
Total Persons		2,692,256	2,127,946	26.5%
High School Graduates (TN Percent)		56.2%	41.7%	34.8%
College Graduates (TN Percent)		12.6%	7.9%	59.5%
High School Graduates (U.S. Percent)		68.7%	55.2%	24.4%
College Graduates (U.S. Percent)		17.0%	11.0%	54.5%

Source: U.S. Bureau of the Census, *Advance Estimates of Social, Economic and Housing Characteristics, 1980, Tennessee, PHC80-S2-44*, and Vol. I, *Characteristics of the Population, 1970, Tennessee, Pt. 44.*

Educational Shifts

As Table 2 shows, the education level of Tennessee's population aged 25 or older improved significantly between 1970 and 1980. The number of high school graduates increased 56 percent, or more than twice as fast as the total population growth of this group, while the number of college graduates grew four times as fast.

The proportion of the adult population with a high school education grew from 41.7 percent in 1970 to 56.2 percent in 1980, and the proportion with four or more years of college increased from 7.9 percent to 12.6 percent. However, these levels still lie far below the 1980 U.S. average of 68.7 percent of the population with four years of high school and 17.0 percent with four or more years of college. The proportion of those completing 4 years of high school was just 82 percent of the U.S. figure in 1980 and the proportion with 4 or more years of college, only 74.1 percent.

These data, considered in conjunction with the idea that Tennessee is now faced with substantial structural unemployment on top of the current cyclical unemployment problem, lead to the conclusion that the state must rededicate itself to improving the general education level of the population. General education remains almost exclusively the responsibility of state and local government in our federal system. Tennessee must continue to make an effort to improve general education levels at faster rates than other parts of the country so that the relatively bleak unemployment forecast shown in Figure 1 does not take place. The recent high unemployment rates must not be seen as inevitable or self-correcting. Reducing them will require the dedication of state and local governments to long-term strategies aimed at preparing Tennessee's labor force for the jobs of the future. ■

TWO VIEWS

The Tennessee Department of Economic and Community Development

John L. Parish, Commissioner

In 1980 and 1981 the Tennessee unemployment rate exceeded the U.S. average and in 1982 peaked at a rate far above that average. In his second-term inaugural address in January, Governor Lamar Alexander stressed the importance of quality education in the state to lower that rate, emphasizing that 75 to 80 percent of new jobs are going to require education beyond the twelfth grade, whereas presently only half of Tennessee's adults have finished high school. To reinforce his Master Teacher plan, a long-range program initiated to improve education in the state, the Governor stressed "basic skills first, computer skills next, then new job skills for Tennesseans of all ages" in the hope of improving family incomes by providing needed job opportunities for Tennesseans.

Prominent among the Governor's other jobs-development moves have been those in high technology, small business, and job skill requirements – each growing out of task forces that he has appointed to tap expertise statewide, analyze needs and potentials, and make recommendations for legislative and administrative action.

State Initiatives

Other initiatives have included a Safe Growth Plan, a Memphis Jobs Conference, a West Tennessee Jobs Conference in which the Governor participated, and a network of Governor-appointed Cabinet Councils to work in five areas, including jobs and safe economic growth. Three more state-level initiatives for the future which should have positive effects on jobs growth, retraining, taxation, and the environment that are now being addressed by the Governor and the Cabinet Councils are the following:

(1) A plan to make basic skills education available to adults. Job skills training has been assigned to the state Board of Regents, and a major thrust will be the establishment of job skill centers and needed post-secondary training at vocational-technical schools and community colleges located throughout the state. The job skill centers will prescribe basic skill training necessary for an individual to undertake subsequent training for specific job skills.

(2) Plans leading to possible reforms that will simplify taxation and insure a fair and equitable tax system.

(3) A potential initiative for clean water programs and wastewater treatment problems that exist statewide.

Fostering public and private conditions permitting business and industry to grow depends on building a conducive business climate. "Business climate" embraces a multitude of growth factors: protecting the state's Triple-A top credit rating, a fair tax structure, providing needed services and amenities, guarding the environment, and taking all possible measures to cut red tape and expedite the opening and operating of businesses in Tennessee.

Recognizing the changes in job patterns now established and those which are projected, and knowing that Tennessee, just to stay even, must produce 16 percent more jobs during the remainder of the 1980's than now exist, the state is confronted as never before with the need to be creative and innovative in its pursuit of new jobs. The following efforts are being made at the state level to solidify and intensify plans for the best possible results:

(1) Reorganization of the Department of Economic and Community Development to separate administrative from operating functions.

(2) Involvement of local leadership in the work of the department's sales and marketing staff.

(3) Emphasizing the attraction of corporate headquarters, warehousing and distribution, and service industry, while maintaining efforts for traditional manufacturing jobs.

(4) Pursuance of departmental initiatives important to jobs development through the new job skills training districts statewide, the Appalachian Regional Commission and Community Development Block Grant programs, the work of the Tennessee Film, Tape and Music Commission, the Industrial Training Service, industrial research, Office of Minority Business Enterprise, Office of Small Business, export trade promotion, monitoring of state and national legislation affecting business and industry, national and international advertising, and the Existing Industry Services program.

Critical Factors

The services to existing industry work is critical because expansions of firms already here in the state account every year for the majority of capital investments and new jobs. The staff works with plant managers to overcome growth-hindering problems and to cut red tape and conducts a Product Match program that encourages Tennessee business and industry to buy parts and services within the state when available.

Management's willingness to be innovative, both in its manufacturing processes and in its sales and marketing, is vital to the growth of existing business and industry, since both domestic and foreign competition makes innovation absolutely imperative today. Opportunities still abound in the manufacturing sector. An estimated 20 to 25 percent of the state's employment will probably still be in manufacturing by the year 2000, notwithstanding the permanent elimination of some factory jobs and the movement away from factory jobs to more service-oriented employment.

The Governor's Three Star Community Economic Preparedness Awards Program encourages communities all across Tennessee to step up their own development efforts and reevaluate their direction and potentials.

State-level initiatives, both legislatively and administratively, can be expected to help reverse unemployment trends in Tennessee and bring the percentage back down below the national averages. In the final analysis, better schools and quality education, while needing state support, depend on local orientation and support. Better quality-of-life programs begin in the state's cities and towns, not in state agencies. ■

FROM THE STATE:

The Tennessee Department of Employment Security

Thomas Yount, Commissioner

Problems created by high unemployment and a rapidly changing job market have had a major impact on the state Department of Employment Security (ES), which serves more than 78,000 employers and a labor force of more than two million.

Economic growth based on new industries, investments, and jobs will be required to accomplish Governor Alexander's goal of raising family incomes. ES administers two programs which are tied directly to the Governor's priorities for the economic development of the state: Job Service of Tennessee and the Unemployment Insurance Program. More than 100 Job Service offices across Tennessee work to match employers who have job openings with qualified job seekers, placing between 70,000 and 100,000 people annually. The Unemployment Insurance program, which provides for the payment of unemployment benefits to qualified workers, is funded by premiums paid by 78,000 covered employers on the first $7,000 earned by each employee. Employer premiums are paid into the state's Unemployment Insurance trust fund, from which benefits are paid.

During the past year, ES has effected changes in both programs in response to major shifts in the state's economy.

Problems and Solutions

Much of Tennessee's recent unemployment is structural and does not lend itself to quick or easy solutions. One of the results of the high unemployment in the 1980's was the severe strain it placed on the state's Unemployment Insurance system. In each of the last three years, the Department has paid more money in benefits than it has collected in insurance premiums. In January 1983 the state's trust fund was depleted. As a result, the Department borrowed a total of $60.2 million from the federal government to help pay benefits. At the same time, inequities in the funding structure were identified and targeted for change. The Department then prepared legislative proposals which would address the major problems of the Unemployment Insurance system, guided by the three principles basic to the system.

First, clarification of the Unemployment Insurance program as an **insurance** program, not a welfare program, means it must be fiscally and actuarially sound. Secondly, employers need to pay a fair share of the cost of unemployment, and benefits should be more in line with the amount of wages earned.

Finally, employer insurance premiums should permit Tennessee to be competitive with surrounding states in economic development and industrial recruitment.

In general, the new legislation tightens requirements for claimants to receive benefits, increases revenues and restores solvency to the trust fund, making the system more equitable overall.

The entry premium rate for most new employers will remain at 2.7 percent; however, new employers whose industry group has a history of high unemployment will pay a higher entry premium rate.

ES will also accelerate its delinquent premium collections, since employer bankruptcy and reorganization of debts has increased steadily over the past few years.

The "Displaced" Worker

For Job Service of Tennessee, the challenge of the 1980's will be the "displaced" worker, those whose long-time jobs have been eliminated by technological change, international trade, or other factors resulting in little or no demand for their skills and experience. Job Service staff will have to identify displaced workers, assist them through aptitude and performance testing, and guide them into retraining programs for new kinds of jobs.[1]

The Department is now developing a plan to automate local Job Service offices through the use of computer terminals to register applicants more quickly, provide them with better access to job listings statewide, provide updated information on job orders, and better match applicants with available jobs.

Service to employers is another responsibility that Job Service is working to improve. Once local Job Service offices have the attention of an employer, the staff must be able to provide service that is prompt and reliable, and need-specific.

The Department already has in place a Job Service Improvement Program designed to keep the lines of communication open between employers and local Job Service staff. Local committees throughout Tennessee are composed of business and industry leaders who offer office managers both positive and negative criticism. The goal is simple--to listen and respond to employer needs. Each year between 80 and 100 local Job Service Employer committee meetings are held throughout the state, attended by between 2,400 and 2,700 employers, but wider employer participation is needed.

The 1980's will be a decade which sees changes in the job market affecting both employers and workers. As Tennessee moves from labor-intensive industries to more capital-intensive industries, the development of an educated, skilled, adaptable work force becomes even more critical. ■

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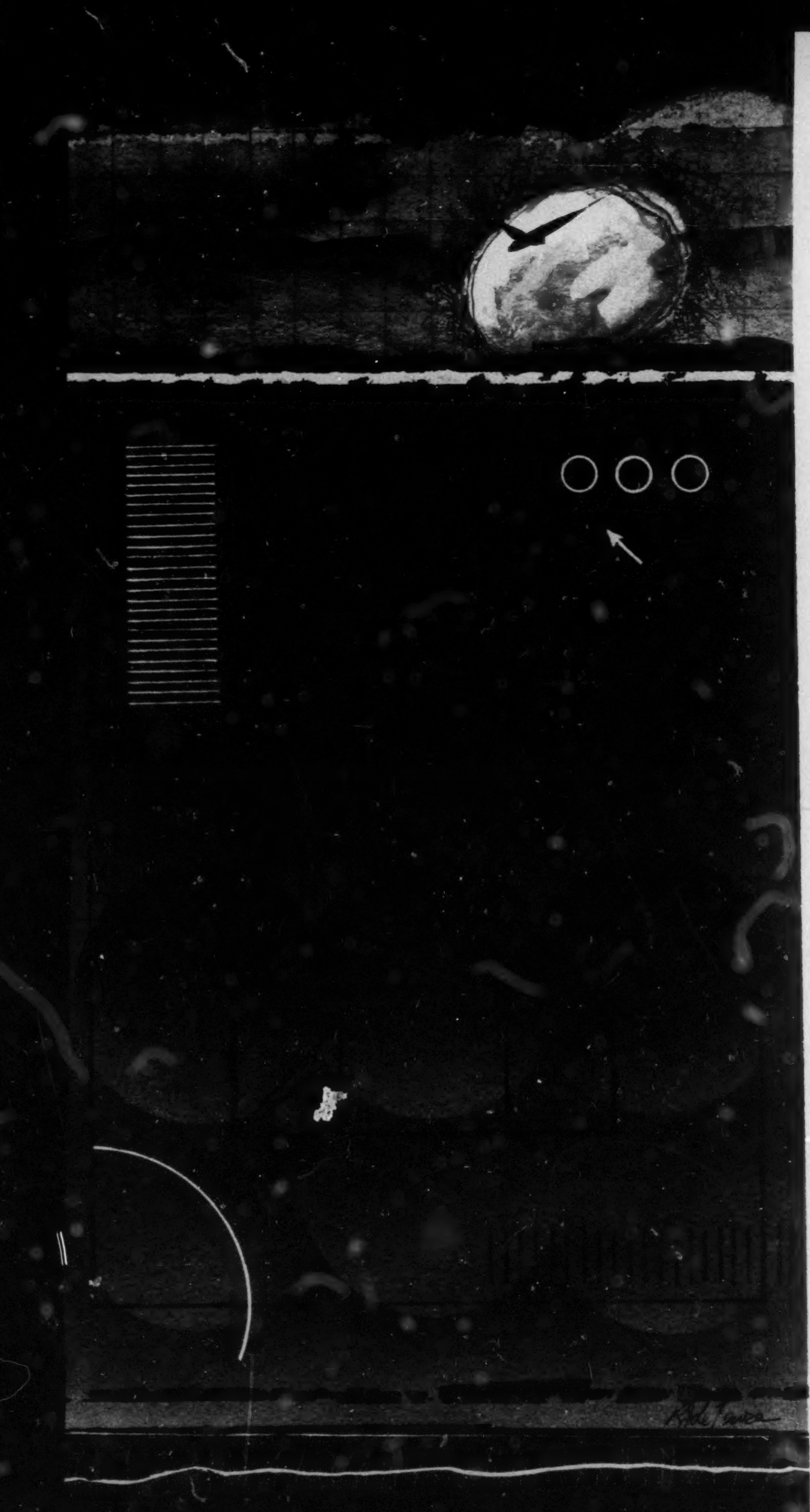
[1] **Your State Employment Service is Working Harder to Keep America Working,** ***Interstate Conference of Employment Security Agencies (Washington, 1983).***



U.S. Business Cycle Impacts on the Tennessee Economy

John W. Mayo

The economic story in Tennessee during much of the 1970's was one of rising inflation, slackening growth, and generally increasing levels of unemployment. Nevertheless, relative to the national economy, the performance of the Tennessee economy remained strong throughout the 1970s. Recently, however, the relationship between the Tennessee and national economies appears to have changed. Beginning in 1980, the Tennessee unemployment rate has been consistently higher than the nation's. This article examines in detail the relationship that has existed over time between the Tennessee and U.S. economies, with the ultimate aim of shedding light on possible sources of Tennessee's current "unemployment gap," relative to the nation.

The Relationship Between Tennessee and U.S. Employment

Several economic indicators--output, wages, productivity, employment, etc. – are available to provide evidence of the underlying nature of Tennessee's current economic malaise. Employment behavior is a good area on which to focus because it serves as an indicator of the economy's performance and is also an important object of public policy. Unless specified otherwise, references to employment will mean the total number of nonagricultural jobs as measured by the Tennessee Department of Employment Security. The time series data utilized here allow us to analyze the behavior of the Tennessee economy *over time*. They consist of monthly observations of the unemployment rate and employment in Tennessee and the United States for various sectors of the economy.

There are several basic questions to be answered if we are to understand the overall relationship between the U.S. and Tennessee economies: Do changes in the Tennessee economy generally move in the same direction as the national economy? That is, are movements in the Tennessee economy dependent or independent of national patterns? If Tennessee is dependent on the national business cycle, how sensitive is the relationship? Has the historical relationship between the Tennessee and U.S. economies remained stable, or has this relationship changed in recent years? Could Tennessee's current economic difficulties be illusory — caused either by systematic seasonal employment patterns or by different timing of the Tennessee and U.S. business cycles?

In order to address these questions, two approaches were taken. First, the historical relationship between the monthly percentage change in Tennessee employment and the monthly percentage change in U.S. employment was examined and statistically evaluated for 1970-1982 and for several subperiods. A second approach utilized time series econometric analysis of the monthly employment data for Tennessee and the U.S.

The results of the analysis of Tennessee and U.S. employment data indicate, not too surprisingly, that movements in the Tennessee economy are quite sensitive to national employment changes. In addition, we find that there is a strong "ripple effect" from national employment changes that affect Tennessee employment in subsequent periods. We also find that the response of Tennessee employment to national employment movements has changed significantly since 1979; and while the current national economic downturn is partly responsible for Tennessee's economic woes, the full impact of Tennessee's soft economy cannot be attributed exclusively to the national downturn.

As part of the time series econometrics tests performed, we considered the possibility that Tennessee is not more sensitive to national economic swings but is, or has become, a "leading indicator" of national employment patterns. This was important to test, because if Tennessee has become a leader, then the problem of the current, differentially higher unemployment in Tennessee is simply a matter of timing, rather than a structural problem with the Tennessee economy. We found that, from 1970-1982, movements in the Tennessee employment cycle did not generally lead the nation. We are left with the conclusion that the Tennessee economy has been sensitive to national movements of the business cycle, that during the 1979-1982 period the historical relationship between Tennessee and the U.S. has changed, and that Tennessee's unemployment gap is not simply a problem of timing. (Details of these tests are available from the author upon request).

Sectoral Relations of the Tennessee and U.S. Economies

In order to understand better the sources of Tennessee's current economic problem, we now turn to a comparative analysis of various sectors of the U.S. and Tennessee economies. These sectors--manufacturing; trade; government; services; transportation, communications, and public utilities; finance, insurance, and real estate; and construction--are analyzed in the order of their 1977 employment ranking in the Tennessee economy.

In order to determine each sector's employment performance, employment indexes with a 1972 base were developed for Tennessee and for the U.S. for each quarter from 1972 through 1982. For example, an index number of 106 for Tennessee chemical goods in the first quarter, 1979, means that chemical employment in the first quarter of 1979 was 6 percent *higher* than average monthly chemical goods employment in 1972. Similarly, an index of 94 would mean that employment was 6 percent *less* than the 1972 average.

The Tennessee index for a particular economic sector, for example, retail trade, is plotted along with the retail trade index for the U.S. to allow a visual comparison of relative employment performance over the past ten years. Second, a particular Tennessee index can be divided by the U.S. index for the same month and economic sector. The result is a "relative growth ratio." If the ratio exceeds one for a particular month and economic sector, then Tennessee employment growth from 1972 until that month exceeded employment growth in the same sector of the U.S. A ratio less than one indicates employment growth in Tennessee at a rate less than that of the nation. This ratio, plotted over time, gives a comparison of employment growth in Tennessee and the U.S. after removing the influence of business cycle swings.

Manufacturing

Manufacturing is the largest employment sector in both Tennessee and the United States. For 1977, Tennessee manufacturing constituted 26.6 percent of total employment, while the comparable number for the U.S. was 22.1 percent. Manufacturing employment is quite sensitive to business cycle swings. Figure 1 shows that both Tennessee and U.S. manufacturing employment were hit hard in the 1970 and 1974-75 recessions.

During the 1974-75 recession and subsequent recovery period, manufacturing employment patterns in Tennessee closely followed the national trend. However, since 1978 this has not been the case. Manufacturing employment peaked in the summer of 1978, about one year before the national peak. It then began to fall at a much faster rate than in the U.S. in 1979 and 1980. During 1981, Tennessee manufacturing employment fell absolutely, but held its own relative to the nation. In 1982, manufacturing employment in Tennessee continued to fall, both absolutely and relative to the U.S.

John W. Mayo is a Research Assistant Professor at the Center for Business and Economic Research and Assistant Professor of Economics, The University of Tennessee, Knoxville. His research specialties include energy and microeconomics.

FIGURE 1

MANUFACTURING: TENNESSEE AND U.S. EMPLOYMENT INDICES

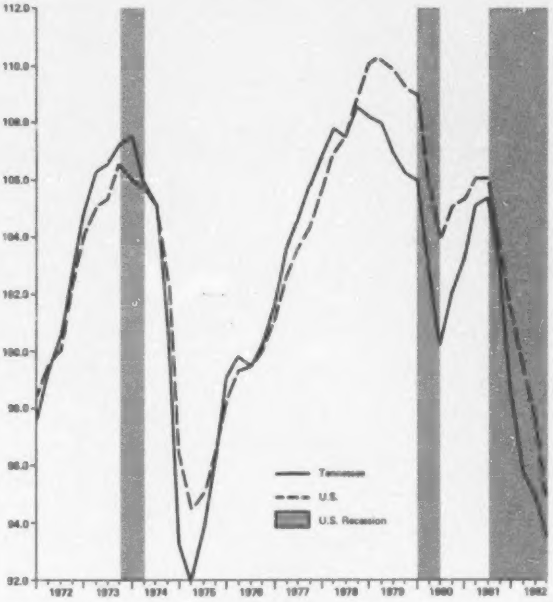


FIGURE 2

NONDURABLE GOODS: TENNESSEE AND U.S. EMPLOYMENT INDICES

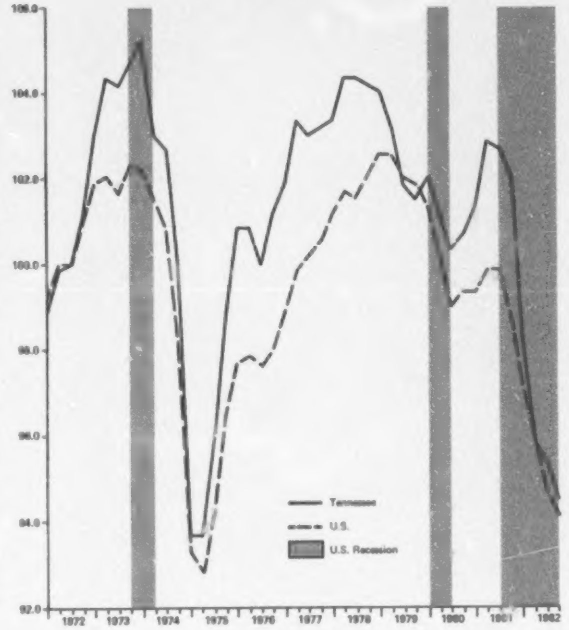


FIGURE 3

DURABLE GOODS: TENNESSEE AND U.S. EMPLOYMENT INDICES

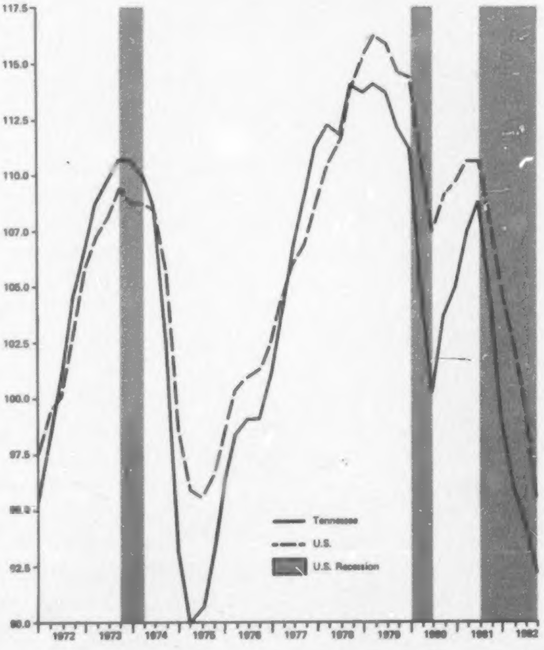
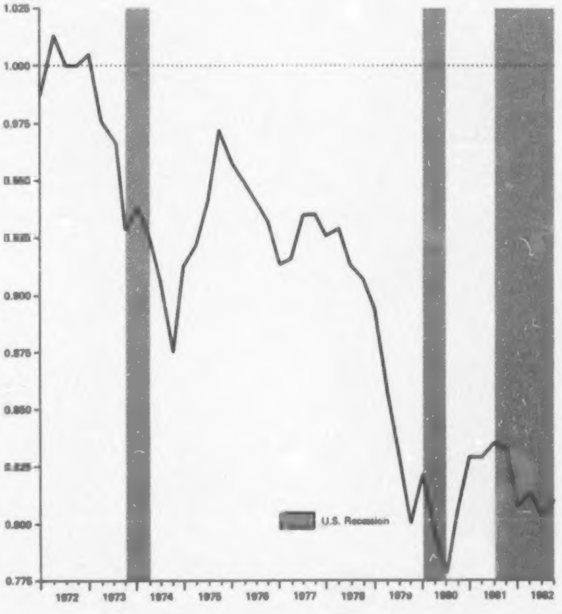


FIGURE 4

FURNITURE: RELATIVE GROWTH RATIO



SOURCE: The Center for Business and Economic Research.

In addition to examining manufacturing at a general level, we also explored the behavior of Tennessee employment in two major manufacturing sectors, durable and nondurable goods, and in several subsectors. Durable goods include such items as lumber, furniture, nonelectrical machinery, primary metals, and electrical machinery. Nondurable goods include such items as food, tobacco, textiles, apparel, and chemicals. The employment indices for nondurable and durable employment in Tennessee and the U.S. are presented in Figures 2 and 3. In Figure 2 we see that Tennessee's nondurable manufacturing sector is no more or less volatile than that of the U.S. However, in Figure 3 we see that Tennessee durable goods employment has suffered not only in proportion to the national downturn, but has also been hit much harder.

Questions now arise concerning the source of Tennessee's durable goods employment difficulties. Our analysis indicates that there are two difficulties that have affected, either in concert or individually, various durable goods sectors.

The first problem is a long-run, secular decline in relative employment. An example of this type of employment problem is indicated for the Tennessee furniture industry in Figure 4. There we see that, beginning in 1973, growth in the Tennessee furniture industry has been slower than in the U.S. This secular decline may be due to a number of factors: loss of natural resource base, changes in relative wage rates, changes in transportation costs, or changes in the location of strong markets for furniture.

The second source of Tennessee's durable goods employment difficulties appears to be a short-run, cyclical employment problem that is, at least to some extent, uniquely associated with the current national recession. Examples of this recent cyclical decline in employment are shown in Figures 5 and 6 for the fabricated metals and stone, clay and glass sectors, respectively. This decline may be due in part to the inter-industry linkages of these industries to the construction industry which, as we will discuss later, has been hit significantly harder than the construction industry elsewhere in the U.S.

Other manufacturing durable goods industries that were analyzed include lumber, primary metals, nonelectrical machinery, electrical machinery, transportation equipment, and instruments. Of these, transportation equipment, primary metals, and instruments were the only Tennessee industries found to have a long-run employment growth rate that exceeded their national counterparts. Lumber and nonelectrical machinery have been hit by the recession, but not more than in other states. Electrical machinery is suffering a sharp cyclical downturn, much like the fabricated metals industry (see Figure 5).

Trade

The combined wholesale and retail trade sectors constitute the second largest employment sector in Tennessee. Trade employment has been a growth sector for the past decade, both nationally and in Tennessee. In 1971, there were 269,000 Tennesseans employed in retail and wholesale trade. By 1981, Tennessee's trade employment had swelled to 372,800 workers. Our analysis indicates that both wholesale and retail trade employment have been affected in a similar fashion in Tennessee, so we focus here on the retail trade sector.

The historical pattern of retail trade employment in Tennessee relative to the U.S. is shown in Figure 7. It reveals several pieces of information. First, until recent years, Tennessee employment in retail trade grew faster than the U.S. Second, during the 1974-75 recessionary period, retail trade in Tennessee continued to perform better than in the nation. Finally, Figure 7 shows that, beginning in 1978, Tennessee retail trade employment fell sharply, relative to the U.S. In fact, while national retail trade employment has continued to grow over the 1979-81 period, Tennessee retail trade employment has fallen from 277,500 to 265,600 employees. *We are led to conclude that, beyond the effects of the national recession, the trade sector has contributed to the sluggish performance of the Tennessee economy in the current recession.*

Government

Ranking behind only manufacturing and trade, government is the third largest employment sector in Tennessee. The 1971 to 1980 period was an era of government employment growth. In Tennessee, federal government employment rose by 63 percent, while state and local government employment rose by 30 percent. In Figure 8 we see that federal government employment in Tennessee grew significantly faster than in the rest of the nation for the 1973 to 1980 period. However, since 1980 federal government employment in Tennessee has fallen both absolutely and relative to the U.S.

In Figure 9 the growth rates of Tennessee's and other states' state and local government employment are compared. We see that for the 1972-75 period government sector growth was roughly equivalent in Tennessee and the U.S. However, from 1975 to 1979, Tennessee's state and local government employment grew more rapidly than in other states. While government employment since 1980 has fallen slightly outside Tennessee, Tennessee's state and local government employment has fallen abruptly. *We conclude that the recent declines in federal, state and local government employment in Tennessee have contributed to the unemployment rate gap that currently exists between Tennessee and the U.S. average. Furthermore, rapid government sector growth during the 1970's in Tennessee probably cushioned the state's economy from external economic shocks.*

Services

Services is a major growth sector in both Tennessee and the United States. The employment growth paths for Tennessee and the nation in the services sector can be seen in Figure 10. There we see that employment growth in the

FIGURE 5

FABRICATED METALS: RELATIVE GROWTH RATIO

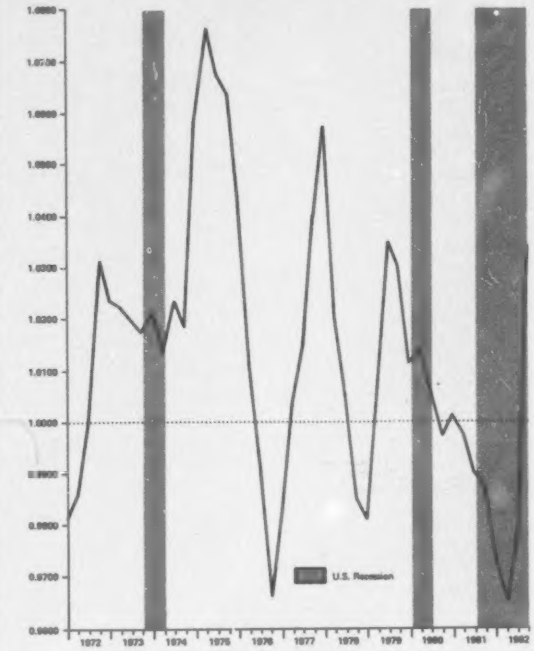


FIGURE 6

STONE, CLAY, GLASS: RELATIVE GROWTH RATIO

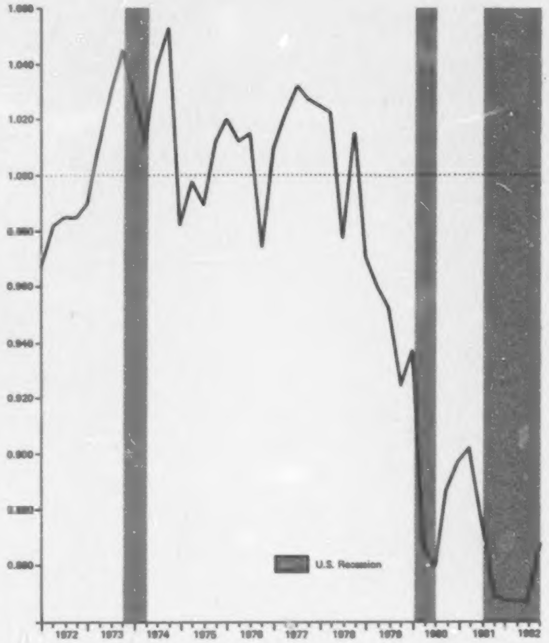


FIGURE 7

RETAIL TRADE: RELATIVE GROWTH RATIO

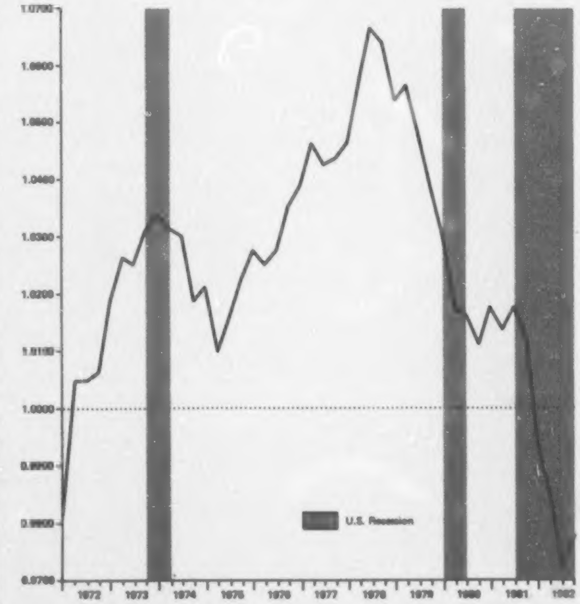


FIGURE 8

FEDERAL GOVERNMENT: TENNESSEE AND U.S. EMPLOYMENT INDICES

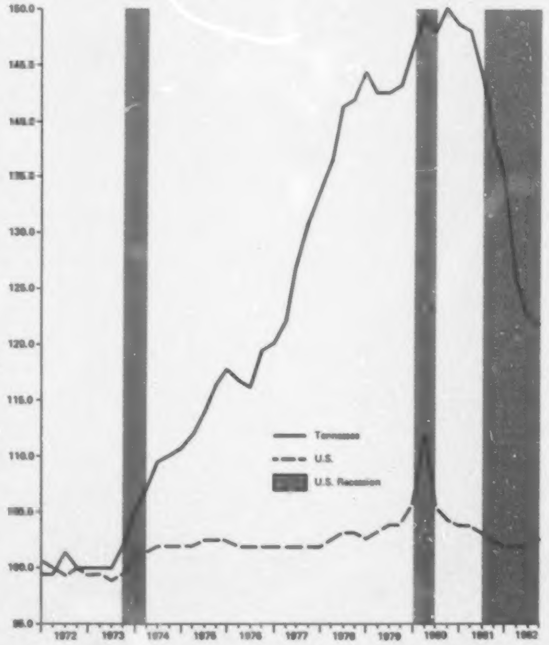


FIGURE 9

STATE AND LOCAL GOVERNMENT: TENNESSEE AND U.S. EMPLOYMENT INDICES

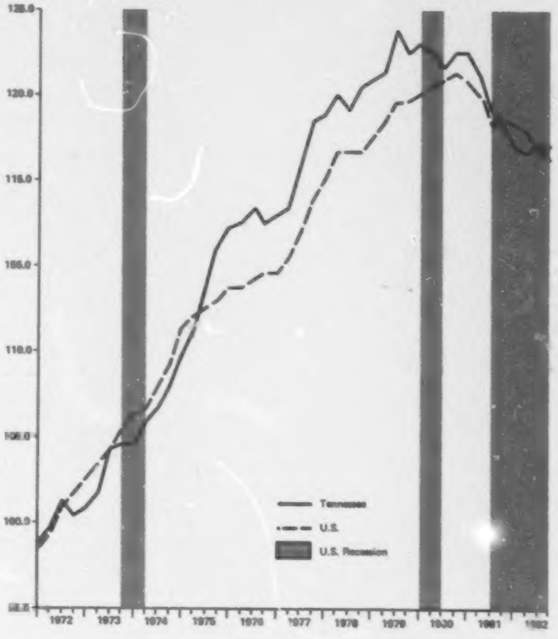


FIGURE 10

SERVICES: TENNESSEE AND U.S. EMPLOYMENT INDICES

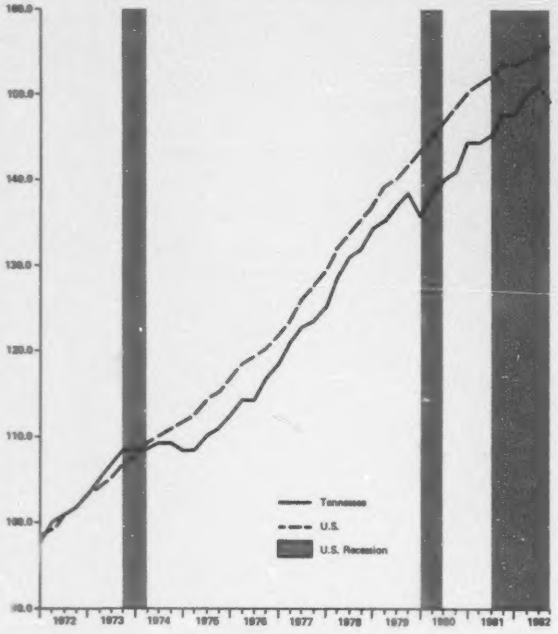


FIGURE 11

TRANSPORTATION, COMMUNICATIONS, AND PUBLIC UTILITIES: TENNESSEE AND U.S. EMPLOYMENT INDICES

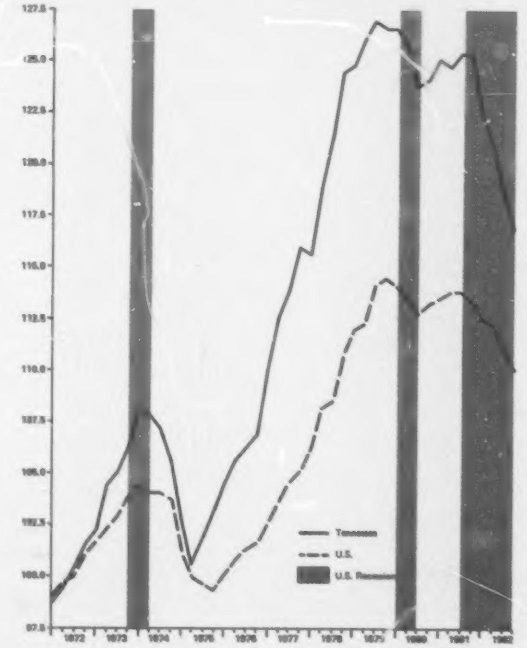
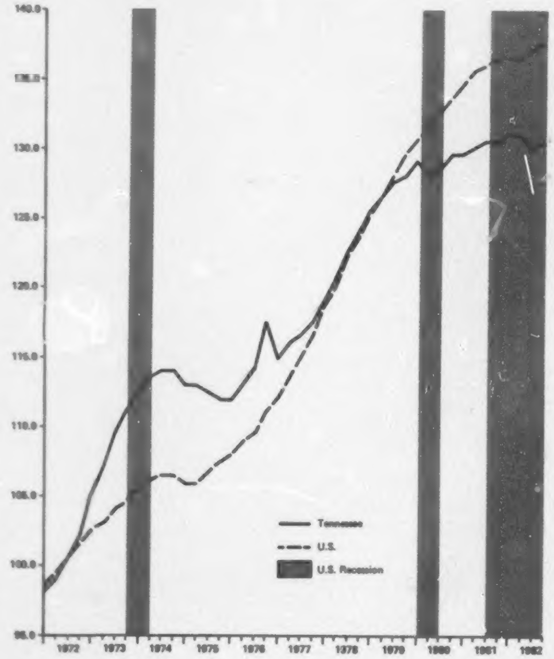


FIGURE 12

FINANCE, INSURANCE, AND REAL ESTATE: TENNESSEE AND U.S. EMPLOYMENT INDICES



sector has been strong for the past decade in both Tennessee and the U.S. Furthermore, we see that services sector growth has been relatively insensitive to business cycle swings. Overall, Tennessee's services sector employment has moved in close accord with the national pattern. *We conclude that Tennessee employment in the services sector has not contributed to the recession either nationally or in Tennessee.*

Transportation, Communications, and Public Utilities

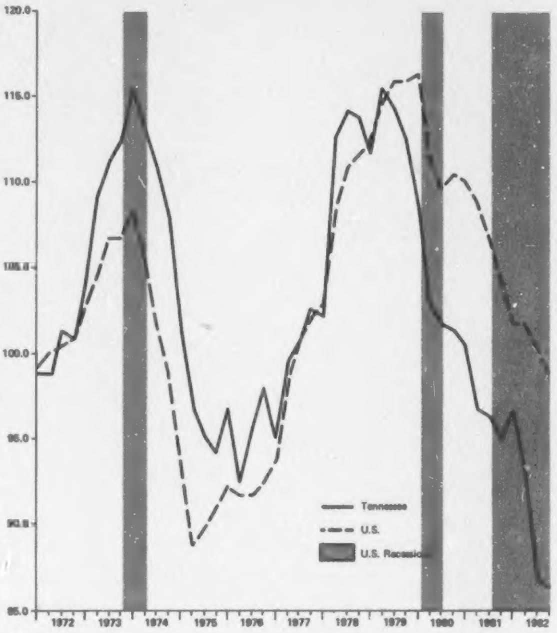
The transportation, communications, and public utilities (TCPU) sector is a small (1981 employment = 85,600), diverse, and rapidly changing sector of the Tennessee economy. Regulatory changes in the transportation industry and technological changes in the communications industry in recent years have fundamentally altered the employment picture in this sector. These changes are reflected in Figure 11, which shows that the employment growth paths in TCPU for Tennessee were, more or less, the same for the 1969-75 period. However, following the 1974-75 recession, TCPU employment began rapid growth both in Tennessee and in the rest of the nation. For the 1975-79 period, TCPU employment growth in Tennessee was significantly more rapid than the nation. During this period, Tennessee TCPU employment grew by over 23 percent. In 1979 TCPU employment leveled off and, during the 1980-81 recession, fell slightly. This sensitivity of Tennessee TCPU employment to the 1975-79 upswing is also present for 1980-81 downturns in the business cycle, as Tennessee TCPU employment has fallen more rapidly than in the rest of the nation. *Nevertheless, TCPU employment in Tennessee has outpaced the nation for the 1972-1982 period, so despite a mild downturn in employment growth in Tennessee TCPU, this sector cannot be identified as a major contributor to Tennessee's unemployment gap.*

Finance, Insurance, and Real Estate

The finance, insurance, and real estate (FIRE) sector of the Tennessee economy is small (about one-sixth the size of manufacturing), yet the employment pattern in Figure 12 shows that FIRE has been an important source of employment growth both for Tennessee and the U.S. in the 1970's. Furthermore, during the 1974-75 national recession, Tennessee FIRE employment was strongly countercyclical and undoubtedly cushioned the impact. Unfortunately, FIRE employment in Tennessee in the most recent national economic downturn has not been countercyclical and employment in Tennessee FIRE has stabilized at its 1979 level, while FIRE employment nationally has continued to grow. See Figure 12. *We conclude that the absolute and relative decline in Tennessee's FIRE employment in recent years has contributed to Tennessee's unemployment rate gap relative to the nation.*

FIGURE 13

CONSTRUCTION:
TENNESSEE AND U.S. EMPLOYMENT INDICES



Construction

Employment in construction has always been, and remains highly volatile. In Figure 13 construction employment, both in Tennessee and the nation, shows a significant pattern of "boom" and "bust." During the period of the 1974-75 recession, Tennessee employment growth in construction was more rapid than in the nation. Furthermore, when employment fell, Tennessee's employment decreases were smaller than those in the rest of the nation.

Either by design or by accident, the policy of the state and federal governments in the construction sector was countercyclical in the mid-1970s recessionary period. It is not surprising then to find that the most current recessionary period has once again hit Tennessee construction employment quite hard, as indicated in Figure 13.

Conclusions

Because of the sensitivity of the Tennessee economy to movements in the national economy, a large portion of Tennessee's current economic sluggishness can be attributed to the national recession. However, a perplexing gap between the national unemployment rate and the Tennessee unemployment rate has persisted since 1980. Several sources for the persistent unemployment gap are (1) a soft durable goods sector in Tennessee, especially furniture; stone, clay and glass; and fabricated metals, (2) anemic employment performance in the Tennessee FIRE, wholesale and retail trade, and construction sectors, and (3) the absence of significant counterbalancing growth in federal or state and local government employment in Tennessee. ■

Diversity and Concentration in the Tennessee Economy: The Critical Sectors

Patricia D. Postma

At the highest level of aggregation, Tennessee's employment is distributed more toward manufacturing and less toward nonmanufacturing employment than U.S. employment as a whole. Within manufacturing, concentrations are apparent in some areas, and much of Tennessee's manufacturing is characterized by low value added, relative to value added in those same sectors for the United States. Aggregate measures, however, are not likely to reveal the nature of a region's economy, especially in its manufacturing, mining, and agriculture sectors. Within these aggregate sectors, the products and the means of producing them vary greatly. It is the markets of *specific* products made in Tennessee and the kinds of labor and capital inputs used in their production that determine our economic performance and differentiate it from other regions with different products and processes.

Employment by two- and three-digit SIC codes presented in this paper will allow a fairly close look at economic structure.[1] The SIC classification is limited in at least two ways. The first limitation is that two-digit or lower level detailed data are not readily available and may not be obtainable at all for most substate areas outside SMSA's.

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[1] *The SIC (Standard Industrial Classification Code) was developed to provide statistical comparability over time in describing the nation's economy. It has been revised from time to time to reflect changes in national output, usually by the addition of new product codes. The classification system is supply-oriented. That is, products (they may be intangible services as well as goods) which share similar inputs and production processes are grouped together.*

Patricia D. Postma is a regional economist and a Research Assistant Professor on the staff of the Center for Business and Economic Research, College of Business Administration, The University of Tennessee, Knoxville. She is currently on loan half-time to the Tennessee Technology Foundation to assist with development of the Tennessee Technology Corridor in the Oak Ridge-Knoxville area.

(Three- and four-digit data are available only through the federal government's economic census every five years or through costly private surveys.) The second limitation relates to the supply orientation of the classification system. Products are grouped together on the basis of similar production characteristics, so that those relating to a particular market may be found in several economic sectors.

What is Diversity?

Diversity can be defined in many ways, and identifying a single measure that captures the complexity of economic structure is probably neither possible nor even desirable. One widely used practice is to compare the distribution across economic sectors of some variable in the local economy (employment, payroll, or gross sales) with its distribution in some larger economic area. Simple comparisons of percentage distributions are one method, and devising a location quotient (the ratio of the sector percentage in the smaller economy to the sector percentage in the larger economy) is another commonly used technique. Table 1 compares the percentage distribution of 1977 employment in the Tennessee economy and the United States economy and ranks sectors by the amount of employment.

The appropriate mix, i.e., the desirable amount of diversity, will depend on the desired economic goals. These goals may include (1) a sufficient number and variety of jobs; (2) higher levels of wages or per capita income; (3) job stability (i.e., the ability to resist cyclical downturns and long-term industry decline) and (4) fast growth. It does not seem likely that an "ideally diverse" economy could achieve all of these goals. If economic development in a region is being guided, diversity itself should be an objective only to the extent that it will contribute to the desired goal either by supplementing "good," but weak, existing characteristics in the economy or offsetting "bad" ones.

Influences on Economic Structure

The decision to locate production at a given site will be made on the basis of greatest expected net revenues (nonpecuniary costs and revenues will be included). Labor, raw materials, power rates, and intermediate manufactured goods are all familiar aspects of location costs. Where administrative or research activities are conducted, the time and money cost of access to information will be a primary consideration. Market costs include developing the market and transporting the product to the market. The size of a market which can be served from a given location may, in turn, influence production costs and the total number of production locations if economies of scale in production exist.

Changes in production technology or the nature of the final product can radically alter a region's comparative cost advantage. Clearly, telecommunications and other national media have reduced the disadvantage of locations away from major market centers and extended markets for consumer products. Transportation changes, especially the interstate highway system, have decreased transportation costs to many areas. Similarly, the development of a resource in new areas is a competitive threat to areas with a traditional advantage in that resource. Large, low-skill labor forces in less-developed countries represent a cost advantage for several industries that currently have significant employment in the southeastern states.

Influences on Tennessee's Economic Structure

Because regions have had differing endowments of economically valuable human and physical resources and different access to the centers of population and manufacturing, they have had different comparative advantages, and, inevitably, different patterns of economic development. Changes in transportation and communications and a mobile population have lessened differences among the regions of the United States, bringing about more uniform economic structures than previously. Still, in Tennessee as in every region, the activities stimulated by early economic differences have not disappeared; some, albeit in altered form, are still significant. For example, the early growth of Memphis was the result of its location on the Mississippi River and the relatively rich cotton-growing land on both sides of the river. That area retains a relative advantage in agricultural production, though soybeans, and rice in eastern Arkansas, are now the primary products. Memphis' initial role as a regional commercial and distribution center has continued and was deliberately reinforced in this century by the preferences of early city leaders and by the gradual development of extensive wholesaling, a health services complex, excellent commercial airline connections, and more recently by the location there of such corporate headquarters as Holiday Inns and Federal Express.

In East Tennessee, some of the state's earliest manufacturing entrepreneurs established yarn and knitting mills before the turn of the century. In 1983, this textile sector remains an important source of employment in many counties from Hamilton to the Tri-Cities area. Eastman (which originally came to Tennessee in 1920 to use low cost by-products of the lumber industry to make alcohol for its photographic business) and other Tennessee chemical producers have enlarged the state's participation in textile markets by the production of synthetic fibers.

In the period since the Second World War, a large supply of labor has been among the most significant comparative advantages of the state, and indeed the whole Southeast. This regional advantage led to the establishment of labor-intensive manufacturing operations, notably apparel and footwear. Though still labor-intensive relative to much of the nation's manufacturing, the state's newer manufacturing firms produce components and subassemblies for more complex final products whose markets tend to experience higher rates of growth than those of our older manufacturing establishments.

Labor-intensive manufacturing processes generally have certain other associated characteristics. Relatively less capital investment is required, and the technology employed at a given plant is not expected to be modified frequently. Consequently, highly skilled labor is not required, and wages are lower than average manufacturing wages. There are generally only a few professional and administrative employees at such establishments, especially when the establishment is a branch of a multi-plant organization. Thus, when manufacturing output is measured by value added – the economic value attributable to the processing that takes place in a plant or region[2] – value added in labor intensive manufacturing plants will be relatively low. Few of the manufacturing sectors in Tennessee have value added as high as the U.S. average for that sector, as the tables provided show. Some are notably lower.

The Externally Oriented Sectors

Activities which are tied to external markets are the links which transmit economic goods and information from the nation and abroad into and out of the state. Mining, agriculture, and manufacturing are the broad categories which provide the vast majority of these external links, and in Tennessee's case, it is manufacturing that is by far the most significant. The more dynamic the external markets to which we are tied, the more growth (in income or jobs) the state is likely to experience. Externally oriented sectors may also be a means of technology transfer. New products are developed, distribution methods change, and technological innovations occur which make production more efficient and less costly. These technologies will be transferred to Tennessee only to the extent that they are applicable for use in the types of in-

TABLE 1

1977 DISTRIBUTION OF EMPLOYMENT, TENNESSEE AND THE UNITED STATES

	Tennessee			United States		
Sector	Rank	Percent of Total Employment	Employment	Rank	Percent of Total Employment	Employment
Manufacturing	1	26.6	489,900	1	22.1	19,590,100
Government	2	16.6	306,963	2	17.5	15,502,612
Agriculture	3	13.2	244,390	4	9.1	8,076,279
Retail Trade	4	11.8	235,225	4	14.7	13,041,000
Services	5	12.6	231,538	3	15.6	13,817,500
Wholesale Trade	6	5.0	92,501	7	4.9	4,397,000
Construction	7	4.6	85,239	9	4.8	4,236,000
TCPU[1]	8	4.0	73,826	7	5.0	4,405,237
FIRE[2]	9	4.0	72,973	6	5.1	4,486,100
Mining	10	0.5	9,200	10	0.9	800,000
Agricultural Services	11	0.2	3,397	11	0.3	217,131
Total Employment (Jobs)*		100.0	1,845,152		100.0	88,568,959

* Employment data given in the various censuses include both full-time and part-time employment. Individuals holding more than one job are counted twice by this method; thus, total employment (jobs) and employment (jobs) in some sectors is greater than the number of employed persons. Part-time jobs are common in services and retail trade, but they are far more significant in agriculture than in any other sector. (The discussion of agriculture provides more detail on the part-time nature of Tennessee agricultural employment). Farm operators are counted among agricultural employment totals, but proprietors and partners in other sectors are not. Proprietors and partners are a significant component of those whose incomes and occupations are related to construction and retail trade and services. Thus, their exclusion from employment counts biases the significance of these three sectors downward relative to other sectors. Precise data are not available, but it is likely that retail trade and services rank above agriculture when proprietors and partners are included.

1. Transportation, Communications, and Public Utilities.
2. Finance, Insurance, and Real Estate.

Source: *1978 Census of Agriculture; 1977 Censuses of Construction Industries, Governments, Manufactures, Mining Industries, Wholesale Trade; 1977 County Business Patterns.*

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[2] *Value added is measured by the sales value of output less the purchase price of nonlabor inputs.*

dustries here and to the extent that relevant decisionmakers are aware of and choose to implement them within Tennessee.

Other sectors listed in Table 1 for the most part respond directly either to businesses or people inside Tennessee. Services sectors have important indirect ties to our external markets and amplify the effects of changes in the goods-producing or externally oriented sectors. The ability to identify and measure the strength of these ties would greatly enhance our understanding of the state's cyclical behavior and growth potential. In practice, the data are never detailed enough to separate and link activities precisely. Instead, plausible conclusions must be based on the kind of structural analysis that follows.

Manufacturing

In both the state and the U.S., nonmanufacturing employment has grown at a faster rate in the past decade than manufacturing (and will undoubtedly continue to do so); but, in 1977, manufacturing still accounted for 26.6 percent of Tennessee's total employment and 22.1 percent of total employment in the United States.

Ranking manufacturing employment by two-digit SIC codes in Table 2 reveals Tennessee's relative and absolute specialization in apparel and chemicals. Though the proportions are small, the state also specializes in furniture and leather products, and they are approximately twice as big in Tennessee's manufacturing structure as they are in the U.S. Perhaps equally interesting are the sectors of nonelectrical machinery, transportation equipment, and instruments, where the proportion of employment is little more

TABLE 2

1977 MANUFACTURING EMPLOYMENT BY TWO-DIGIT SIC CODE, TENNESSEE AND UNITED STATES

		Tennessee				United States		
SIC Group	Product	Jobs Employment	Rank	Percent of Total Manufacturing Employment	Value Added per Employee	Value Added per Employee	Rank	Percent of Total Manufacturing Employment
23	Apparel	69,900	1	14.3	$ 13,148	$ 14,743	6	7.2
28	Chemicals	53,000	2	10.8	42,938	64,441	9	4.8
36	Electrical and electronic equipment and supplies	38,100	3	7.8	25,039	29,230	3	9.3
20	Food processing	37,200	4	7.6	34,406	36,883	5	8.2
34	Fabricated metals, except machinery and transport equipment	33,400	5	6.8	24,940	29,255	4	8.4
35	Machinery, nonelectrical	29,700	6	6.1	37,667	32,267	1	11.3
22	Textiles	27,100	7	5.5	15,738	18,390	10	4.7
37	Transportation equipment	25,400	8	5.2	27,031	36,360	2	9.5
27	Printing and publishing	23,800	9	4.9	21,416	29,280	8	5.9
25	Furniture	23,000	10	4.7	16,574	19,236	16	2.5
30	Rubber and plastics	21,600	11	4.4	31,537	27,367	11	3.9
31	Leather	17,700	12	3.6	17,362	15,335	18	1.3
33	Primary metals	17,400	13	3.6	30,190	33,736	7	6.0
24	Lumber	16,700	14	3.4	15,665	23,430	12	3.7
26	Paper and allied products	16,500	15	3.4	37,479	35,265	13	3.4
32	Stone, clay and glass	14,800	16	3.0	30,176	31,171	14	3.3
39	Miscellaneous manufacturing	9,900	17	2.0	20,505	23,351	17	2.4
38	Instruments, scientific measuring, photographic, medical, watches, and clocks	3,800	18	0.8	23,579	33,558	15	3.0
21	Tobacco	1,100	19	0.2	38,091	71,520	20	0.3
29	Petroleum refining	1,000	20	0.2	104,100	111,564	19	0.8
	Total Manufacturing	489,900						

Source: *1977 Census of Manufactures.*

than half as large as it is for the United States.

Apparel

The state's apparel industry accounts for 14.3 percent of all manufacturing employees (no sector has so large a share of employment in the U.S. manufacturing structure). Table 3 represents this sector's product distribution. The apparel sector has a lower average value added than any other manufacturing sector in the state or the nation.

Chemicals

As the second largest manufacturing sector, the chemical industry provides 10.8 percent of the state's manufacturing employment--a proportion twice as high as in the nation as a whole. Table 4 shows that one-third of Tennessee's chemical industry employment is in inorganic chemicals (281), and another third is in plastics, cellulose, and synthetic fibers (282). Much of the inorganic chemical production is natural-resource related. Several phosphate pro-

TABLE 3

1977 EMPLOYMENT AND VALUE ADDED IN THE APPAREL INDUSTRY

		Tennessee		Value Added per Employee	
SIC Group	Product	Employment	Percent of Sector Employment	Tennessee	United States
231	Men's and boys' suits and coats	5,300	7.6	$15,038	$15,951
232	Men's and boys' work clothing	41,300	59.1	13,562	13,540
233	Women's outerwear	12,700	18.2	10,402	14,368
234	Women's and children's undergarments	2,000	2.9	9,950	13,613
235	Hats and caps	0	0	0	12,285
236	Children's outerwear	2,800	4.0	10,214	12,348
237	Fur goods	0	0	0	28,200
238	Miscellaneous apparel	1,200	1.7	9,667	15,014
239	Fabricated textiles, nonclothing	4,600	6.6	18,935	18,679
	Total Apparel	69,900	100.0	13,149	14,743

Source: *1977 Census of Manufactures.*

TABLE 4

1977 EMPLOYMENT AND VALUE ADDED IN THE CHEMICAL INDUSTRY

		Tennessee		Value Added per Employee	
SIC Group	Product	Employment	Percent of Sector Employment	Tennessee	United States
281	Industrial gas, chlorine, pigments, inorganic, phosphorous, etc.	17,700	33.4	$56,362	$58,975
282	Plastics, cellulose, synthetic fibers	19,800	37.4	30,419	49,891
283	Drugs	2,800	5.3	58,286	63,554
284	Soap and cosmetics	1,600	3.0	60,250	84,294
285	Paints, lacquers, etc.	600	1.1	20,833	45,950
286	Industrial organic chemicals	6,400	12.1	33,125	84,261
287	Agricultural chemicals and insecticides	1,500	2.8	71,067	70,647
289	Miscellaneous: adhesives, explosives, ink	2,600	4.9	32,731	46,021
	Total Chemicals	53,000	100.0	42,938	64,441

Source: *1977 Census of Manufactures.*

ducers are located in Maury County; copper related chemicals are produced in Polk county; and zinc refining is located in Clarksville. This sector also includes the uranium-enriching facility at Oak Ridge and numerous small producers of industrial gases.

Sector 282 includes foam, or polyurethane products, and a few other small-scale activities, but the overwhelming majority of employment is in the production of synthetic fibers in a few extremely large plants: Buckeye Cellulose in Memphis, Tennessee Eastman in Kingsport, Dupont in Old Hickory, and American Enka in Lowland.

With the likely exception of synthetic fibers, every aspect of the chemical industry is expected to grow over the next decade.

Electrical and Electronic Equipment and Supplies

As Table 5 indicates, this sector includes production of both industrial inputs and finished consumer products. Employment is fairly well dispersed over its component industries, although nearly a third of all electric and electronic equipment manufactured in Tennessee is household appliances (363). Approximately half of this is the production of gas and electric ranges and their components. Historically, stove production has been concentrated in three counties – McMinn, Bradley, and Hamilton. Air conditioners, electric heaters, water heaters, and other residential heating components account for nearly all the rest of sector 363. Though some of this production is destined for the replacement market, this sector is closely linked to the short-term cycles of the construction industry. In the long run, its future may be tied to its ability to develop more energy-efficient products.

Almost all of the electrical and electronic equipment production in Tennessee is located from Nashville and Chattanooga eastward. Stoves and television sets are produced on a large scale, but it is the state's large subassembly plants in this sector (telephone switching devices, appliance timer controls, and small motors) that epitomize many of the branch manufacturing plants in the Southeast, sometimes employing as many as 1,000 workers in one location.

The decision of corporations to locate their large-scale, repetitive production of very specialized components for standard products in Tennessee has increased diversity in the economies of Tennessee and the other southeastern states.

Fabricated Metals

The fifth-largest manufacturing sector accounts for 6.8 percent of all manufacturing employment. Like many others, it is heavily concentrated. Table 6 shows that 40.8 percent of the activity in this sector is in the fabrication of structural components for residences, commercial buildings, and public works. This is a much larger part of the sector than is the case for the U.S. The proportion of Tennessee employment in forgings and stampings is less than half its proportion in the national economy.

The hundreds of establishments

TABLE 5

1977 EMPLOYMENT AND VALUE ADDED IN THE ELECTRICAL AND ELECTRONIC INDUSTRY

		Tennessee		Value Added per Employee	
SIC Group	Product	Employment	Percent of Sector Employment	Tennessee	United States
361	Transmission equipment and switchgear	1,000	2.6	(D)	28,932
362	Electrical equipment for industry	7,100	18.6	26,366	28,297
363	Household appliances	12,200	32.0	23,402	32,509
364	Lighting and wiring	3,500	9.2	35,286	28,735
365	Radio, TV and phonograph	4,400	11.5	31,636	31,506
366	Communications transmitters and equipment	4,500	11.8	(D)	30,818
367	Electronic components	2,700	7.1	15,852	24,791
369	Miscellaneous: batteries, circuit boards, wiring devices	2,700	7.1	20,444	32,362
36	Total Electrical and Electronic	38,100	100.0	25,039	29,230

(D) Data for these sectors was undisclosed in the *1977 Census of Manufactures*. Employment figures for these two sectors were estimated from the *Tennessee Directory of Manufactures, 1978*.

Source: *1977 Censuses of Manufactures.*

which make up the structural metals industry in Tennessee, accounting for more than 40 percent of fabricated metals employment, tend to be very small and are found in all but the smallest towns. Because of its close ties to construction, this sector, along with heating and air conditioning production in sector 35, has undoubtedly contributed to the decline in durable goods employment and the high unemployment rates of the present recession. Slow growth in consumption of electric energy has caused cancellation or deferral of projected plants.

Nonelectrical Machinery

Over the nation as a whole, nonelectrical machinery accounts for more manufacturing employment than any other sector--11.3 percent of all manufacturing. Sixth among manufacturing employment in Tennessee, much of this sector is characterized by very small companies doing custom work in tool and die, metal stamping, or in small-scale production of pumps, ball bearings, air filters, lifts, and other materials-handling devices. Somewhat larger companies manufacture mining equipment and construction equipment, and International Harvester in Memphis (recently closed) manufactured farm and garden machinery. One or two producers of specialized equipment supply industries that are concentrated in the Southeast (textiles, apparel, lumber, and furniture), though their products are also sold internationally. In metalworking, engines, construction and mining equipment, and office and computing equipment, Tennessee produces much less proportionally than does the United States.

In one group of products, our share of this sector is nearly three times greater than the U.S. That group is air conditioning, refrigeration, and heating equipment, which represents a third of Tennessee's employment in this sector.

Some products in the nonelectrical machinery sector have been especially vulnerable to the high interest rates that have prevailed in the past few years, since big price tags on farm machinery and the heavy equipment used in construction and mining make long-term credit financing mandatory.

Textiles

The textile industry was probably the earliest large-scale manufacturing employer in the state. Its first establishments were in East Tennessee, and today the area from Chattanooga to the Tri-Cities includes nearly the entire industry in Tennessee (the exceptions are one very large establishment in Dyersburg and another in Jackson). As Table 7 indicates, state textile production is weighted toward two products – knitwear and synthetic yarns. Together, these products comprise two-thirds of all employment in textiles.

Transportation Equipment/Rubber and Miscellaneous Plastics

Nationally, the transportation equipment sector includes aircraft parts (372), production of ships and boats (373), railroad stock (374), cycles (375), and truck and auto production and parts (371). In Tennessee, while

TABLE 6

1977 EMPLOYMENT AND VALUE ADDED IN THE FABRICATED METAL INDUSTRY

SIC Group	Product	Tennessee Employment	Percent of Sector Employment Tennessee	Percent of Sector Employment United States	Value Added per Employee	
					Tennessee	United States
341	Cans and containers	700	2.1	4.6	$54,571	$50,400
342	Hand tools and hardware	3,400	10.2	10.8	24,029	30,703
343	Plumbing, nonelectric heating equipment	1,200	3.6	3.4	24,750	29,579
344	Structural metals	13,600	40.8	27.4	23,691	27,685
345	Screw products	700	2.1	6.7	25,857	27,356
346	Forgings and stamping	2,500	7.5	18.5	27,320	30,949
347	Coating, plating, etc.	1,800	5.4	6.0	15,278	20,994
348	Ordnance and accessories	3,700	11.1	4.5	25,622	24,741
349	Miscellaneous: wire, pipe fittings, etc.	5,700	17.1	18.0	26,772	28,113
	Total Fabricated Metal	33,400	100.0	100.0	24,940	29,255

Source: *1977 Censuses of Manufactures.*

there is one very large bicycle plant, some barge construction, and some aircraft components production, nearly two-thirds (or 16,000 employees) of the state's transportation equipment sector is engaged in the final assembly of truck bodies, vans, trailers, other specialized vehicles, and suppliers' or replacement parts (371). The parts component is by far the largest, including everything from exhaust pipes to brake drums to seat springs to thermostats.

Employment related to motor vehicles is actually much greater than employment in the sector classified by that name, especially in Tennessee. Employment in rubber and plastics underscores that point, as nearly 40 percent of the employees in this sector produce rubber tires (more than double the U.S.). Plastics account for 63 percent of employment in this sector nationally, but only 38 percent in the state. The rubber and plastics sector is an exception to the value added rule. In nearly every category, value added per employee is higher than it is in the U.S.

The presence of the Nissan plant in Smyrna and its purchase of Tennessee-made components should go a long way toward insuring continued growth in the transportation sector in the state. Furthermore, the computer control technology to be implemented in the plant will make it among the most advanced manufacturing facilities in the world.

Agriculture

Agriculture is an important source of part-time work in the Tennessee economy. Of those counted as employed in the agricultural sector in the **1978 Census of Agriculture**, only 21.3 percent worked full-time as farm operators or hired labor, as the bottom line of Table 8 indicates. Nearly 60 percent of all Tennessee farmers reported a principal occupation other than farming, and 47.4 percent reported working off the farm more than 200 days in 1978 (Table 9). These numbers are considerably higher than the corresponding figures for the U.S., indicating that in Tennessee farming has taken on more of a part-time aspect than elsewhere in the country.

Most farm employment is divided into two product groups--tobacco and livestock. Together they account for 55 percent of full-time farm work and 72 percent of part-time work. Tobacco farming is characterized by a large number of small operators concentrated in Middle and East Tennessee and is a very labor-intensive crop. Average sales on Tennessee tobacco farms were just $5,474 in 1978, considerably below the U.S. average of $16,629 for that year. Average sales per livestock farm were only about one-fourth as high as the U.S. average in 1978. In terms of total sales, however, livestock and livestock products account for slightly more than half the state's farm income.

Southwest Tennessee retains some cotton production, while much of West Tennessee has converted to soybeans in response to that growing market. This single crop accounts for 20 to 25 percent of Tennessee farms' total cash sales in the past few years.

Tobacco is one crop that has not been amenable to machine harvesting, so large-scale farming on flat land has not been essential to remain competitive. Furthermore, crop allotments have limited competition in this market, so East Tennessee continues to produce tobacco profitably. The production of

TABLE 7

1977 EMPLOYMENT AND VALUE ADDED IN THE TEXTILE INDUSTRY

		Tennessee		Value Added per Employee	
SIC Group	Product	Employment	Percent of Sector Employment	Tennessee	United States
221	Broad woven cotton	1,500	5.5	$ n.a.	$16,591
222	Broad woven synthetics	2,400	8.9	19,708	18,483
223	Narrow fabrics: twine, ribbon, elastic	700	2.6	n.a.	16,865
225	Hosiery and other knits	12,900	47.6	13,465	16,376
226	Fabric finishing	1,400	5.2	18,071	19,649
227	Floor coverings	1,300	4.8	18,231	27,421
228	Yarns and thread	4,800	17.7	18,750	16,046
229	Miscellaneous	2,100	7.7	17,857	24,169
22	Total Textile	27,100	100.0	15,738	18,390

n.a. Not available.

Source: *1977 Censuses of Manufactures.*

livestock, dairy cattle, and poultry are likewise much less sensitive to terrain and are produced throughout the state, as is feed corn. (However, dairy farming is much more concentrated in Middle and extreme East Tennessee, while hog production is more concentrated in the northwestern part of the state.)

Much of agriculture in Tennessee today is characterized by multiple job holding and decreasing reliance on direct farm employment for most family income. Nevertheless, this sector provides an important source of part-time and seasonal employment in most rural counties and remains a crucial component of total income for thousands of Tennessee families.

TABLE 8

TENNESSEE AGRICULTURAL EMPLOYMENT, 1978

Principal Product of Farm	Full-time		Part-time		Total	
	Number	Percent	Number	Percent	Number	Percent
Cotton	1,357	2.6	2,049	1.1	3,406	1.4
Dairy	5,024	9.6	8,701	4.5	13,725	5.6
Cash grains	9,191	17.6	16,766	8.7	25,957	10.6
Poultry and eggs	908	1.7	1,939	1.0	2,847	1.2
Other	6,100	11.7	20,423	10.6	26,523	10.9
Vegetables	689	1.3	2,936	1.5	3,625	1.5
Livestock	17,685	33.9	79,339	41.3	97,024	39.7
Tobacco	11,055	21.2	59,298	30.8	70,353	28.8
Fruits and nuts	140	0.3	790	0.4	930	0.3
Total Agricultural	52,149	99.9	192,241	99.9	244,390	100.0
Percentage by type of employment		21.3		78.7		100.0

Source: *1978 Census of Agriculture.*

TABLE 9

OFF-FARM WORK ON TENNESSEE AND UNITED STATES FARMS, 1978

	Tennessee		United States	
	Number	Percent	Number (1,000)	Percent
Principal occupation				
Farming	39,693	40.9	1,327	53.5
Other	57,343	59.1	1,152	46.5
Farmers by number of days worked off farm				
None	32,601	35.1	1,001	42.3
Less than 100	8,754	9.5	264	11.2
100-199	7,402	8.0	196	8.3
200 or more	43,867	47.4	905	38.3

Source: *1978 Census of Agriculture.*

There are linkages between the agricultural, manufacturing, and wholesaling sectors of the state's economy. Tobacco warehousing and processing plants serve tobacco farmers in East Tennessee, and the availability of agricultural products undoubtedly led to the presence of several food processing plants. The growth of wholesaling and processing activities in Memphis is directly associated with the regional agricultural economy in Tennessee, Arkansas and northern Mississippi. Although direct farm jobs have dwindled in number, the processing, marketing, and distribution of agricultural commodities remains an important part of today's Tennessee economy.

Mining

With 9,200 employees in 1977, mining constituted a small part of the state's total employment. There are three major products of mining in the state: non-metallic mining, including stone, gravel, clay, and chemical minerals; bituminous coal; and some employment in metallic minerals. Oil and gas extraction, which accounts for about 43 percent of mining employment in the U.S., is insignificant in Tennessee. In metals mining the largest single component is zinc mining, most of it in Jefferson County. Stone and gravel mining is characterized by numerous small firms, usually one or more in every county. This sector also includes several hundred employees around Maury County engaged in phosphate mining.

Tennessee is a minor producer of coal by national standards – 7½ to 8 million tons per year compared to Kentucky's 150 million tons. The 4,200 Tennessee coal industry workers, accounting for 43 percent of the state's total mining employment, are principally located in five counties in upper East Tennessee. A second production area includes areas of Grundy and Sequatchie counties. The majority of the coal is sold by contract to TVA and private utilities in states to the south of Tennessee. Although many mining permits are issued, regulations and escalating equipment costs have changed the state's coal industry structure over the past decade. Approximately two-thirds of the coal is now mined by only five companies.

Internally Oriented Sectors

The distribution of goods, whether it is the physical movement of transportation or the provision of access and allocation by wholesale and retail trade, is a service; so is the transfer of funds provided by banks and the distribution of public transfer payments or the provision of public health services by government. Growth in the service sectors of the economy has been a much-noted phenomenon of the past two decades.

Along with the growth in consumer services has come a still faster rate of growth in business services brought about by increasingly complex industrial and social organizations, regulations, marketing, and technological changes. The employment data used in this paper also significantly undercounts the number of people whose income and occupation is derived from construction, services, and retail trade, since proprietors and partners are not counted as employees. The effect is to bias the distribution of employment in these sectors downward (as in Table 1, for example) relative to agriculture, where farm operators are included, and relative to other sectors where the proportion of proprietors is much lower. Since the same practice is followed in reporting United States data, however, the comparison of United States structure with Tennessee structure should not be affected.

Services tend to have a two-tiered or dualistic occupational structure. A small percentage are highly paid professionals, in medicine and law, of course, but also in business services. These fields have been traditionally male, and, in the words of a recent study, "it is here and in the top managerial positions of large industrial firms that we find the elite of the labor force."[3] The study goes on to point out, however, that the service work force on the whole is not well paid or highly skilled. Most workers are women or minority workers; many more jobs are part-time; there are few arrangements for job security and little opportunity for advancement, even in the long term.

Construction

Construction, broadly defined, is one of Tennessee's largest industries. Direct on-site private construction employment amounted to more than 85,000 in 1977, and TVA directly employed another 15,748 in the Valley, but this is only a small part of total employment in this important sector. Spread throughout the manufacturing sector are large numbers of jobs dependent upon the construction business. Tennessee's economy has heavy concentrations of firms producing water heaters, electric stoves, central heating and air conditioning systems, electric baseboard heating, wood buildings, wood flooring, and room air conditioners. Demand for these products varies with the national building cycle and is particularly sensitive to residential housing starts. Since Tennessee has such a high proportion of suppliers to the national construction industry, the state has probably suffered considerably from the drastic national decline in residential housing starts. This decline shows up not only in direct losses of construction jobs, but also in the manufacturing and trade sectors.

When using a broad definition for each, the construction industry is considerably larger than the motor vehicle industry in Tennessee and equals agribusiness as a source of full-time employment. More than 11 percent of all manufacturing jobs are linked to construction, and the industry accounted for ten percent of all nongovernment jobs in 1977. When one also considers the substantial growth of TVA construction employment, the industry may currently be the single most important source of jobs in the state's economy.

The recent recessions, high interest rates, and increases in electricity rates have severely affected this sector by lowering demand for TVA-produced electricity, leading, in turn, to the cancellation of several nuclear plant projects in the state. Declines in TVA construction employment coincide with the start of the last recession and have undoubtedly contributed to the relatively high unemployment rates Tennessee has experienced for the past three years.

Services

The services group consists of both personal services and business services. In 1977, more than three-fourths of the state's service establishments were sole proprietorships, many without paid employees. In addition to the employment shown in Table 10, there were more than 27,000 proprietors and partners. Private household workers are also excluded from employment counts in Table 10.

Wholesale Trade

The wholesale trade sector includes manufacturers' sales offices, manufacturers' agents and brokers, importers, grain elevators, and the more familiar jobbers and distributors. These last two account for about 76 percent of all wholesale establishments, but only 38 percent of wholesale sales. Manufacturers' sales offices, approximately 11 percent of all wholesale establishments, account for nearly as large a share of sales – 36 percent.

Measured in terms of sales, the structure of wholesaling in Tennessee shows some notable differences from that of the United States. There is a larger share of nondurable sales in Tennessee, attributable to the importance of sales of farm product raw materials in the state. In Tennessee these sales account for 21.2 percent of all wholesale sales, compared to the United States proportion of 8.8 percent. Chemicals are a slightly larger proportion of sales in Tennessee than in the United States and, among durable goods, motor vehicles have a larger share than is true for the United States as a whole.

Retail Trade

There is little to differentiate the

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[3] *Thomas M. Stanback, Jr.,* **Understanding the Service Economy** *(Baltimore, Johns Hopkins Press, 1979), page 70.*

structure of retail trade in the state from that of the U.S., though 10.2 percent of Tennessee's retail employment is in auto dealerships and service stations, compared to 8.5 percent in the United States. In both geographic areas, eating and drinking establishments account for slightly more than one-fourth of the sector's employment. The remainder of employment is spread fairly evenly across general merchandise stores; food stores; drug and specialty stores; and — in slightly smaller proportions — apparel and accessories; building, hardware, and mobile homes; and furniture and home equipment.

Approximately two-thirds of the retail trade establishments are sole proprietorships or partnerships and, as in construction and the services, their exclusion from employment counts biases the absolute size and share of employment downward relative to the other sectors. It seems likely that the inclusion of working retail proprietors or partners in employment totals (precise counts are not available) would place retail trade ahead of agriculture as a source of employment in the state. The same is true for the service sector.

Government

The state's second largest employment sector in 1977 was government, with 306,963 full- and part-time employees. Twenty-one percent of these employees were in federal civilian jobs, 24 percent in state government, and 55 percent in local government employment. The data on state and local government employment are among the most complete available, both through the 5-year economic censuses and similar annual reports. Table 11 shows state and local government employment by function per 10,000 population for Tennessee and a comparison with the United States average. Both Table 11 and Table 1 are constructed by the Bureau of the Census and are based on full-time equivalent employment (however, the total of federal, state, and local government employment in Table 1 is the conventional sum of full-time plus part-time employment).

TABLE 10

1977 EMPLOYMENT IN THE SERVICES SECTOR

		Tennessee		United States
SIC Group	Product	Employment	Percent of Sector Employment	Percent of Sector Employment
70	**Hotels, motels, and camps**	17,713	7.7	6.6
72	**Personal Services**	19,420	8.4	6.6
73	**Business Services**	38,233	16.5	16.6
75	**Auto Services and Repair**	8,587	3.7	3.5
76	**Miscellaneous Repair**	4,347	1.9	2.0
78-79	**Movies and Other Entertainment**	8,455	3.7	4.8
80	**Health Services**	74,793	32.3	31.4
81	**Legal Services**	4,659	2.0	2.8
82	**Education Services**	17,531	7.6	7.2
83	**Social Services**	10,489	4.5	5.5
84	**Museums and Galleries**	136	0.0*	0.1
86	**Membership Organizations**	19,007	8.2	8.0
	Engineering, Architects, and Survey Work	8,158	3.5	4.9
	Total Services			

* Rounds to less than 0.1

Source: *1977 County Business Patterns*

Comparing the functional distribution of employment, however, shows Tennessee to have relatively more employment in publicly administered hospitals, in housing and urban development, in public infrastructure (highways, sewerage and sanitation), and in municipally operated public utilities, especially electric. The state has relatively fewer employees per 10,000 population in both higher education and local schools, including fewer instructional employees.

The Postal Service and Veterans Administration are two of the largest federal employers in the state. However, TVA is the largest single federal government employer. Data on TVA employment by state are not available, but for 1977, **Federal Civilian Employment in the United States by State, County, and Selected Agency** reported a total federal civilian employment in Tennessee of 63,698, of which 27,512, or 43.2 percent, was unidentified "other agencies." The major part of this group was the power, construction, forestry, recreation, development, and administrative employees of TVA.

Conclusion

Tennessee's economy is far less diversified than it appears at first glance. Production is concentrated in areas that have been hurt by recent economic events, explaining why unemployment reached such historically high levels last year and can be expected to remain above the national average for a considerable time to come. It is also the reason why the state can be expected to permanently lose a significant number of jobs, even after the national economy recovers from the recession.

The apparel and textile industries in Tennessee are heavily concentrated in the production of work clothes,knitwear, and synthetic yarns, which are subject to import competition and shifting consumer tastes. Nearly 40% of chemical industry employment is tied to textile manufacturing located in Tennessee and neighboring states and will be affected by the same pressures as that industry. In machinery and metals, much of the state's output is closely tied to the construction industry. If interest rates remain high and household formation slows down, homebuilding in the U.S. during the eighties is unlikely to reach the levels attained during the seventies. Demand for Tennessee-made products such as air conditioners, water heaters, and stoves is also unlikely to return to its pre-recession peak. With the completion of the interstate system and the abrupt winddown of TVA's nuclear plant program, heavy construction should also rebound slowly across the state.

On the brighter side, the transportation equipment sector, which is now concentrated in the replacement parts market, should get a major boost from the recent opening of the Nissan plant. The states service sector should also offer numerous job opportunities in the future.

A number of important economic sectors in Tennessee are now in trouble. As the U.S. economy shifts to service industries from smokestack industries, a significant percentage of the manufacturing sector in our state is likely to undergo a long-term decline or, under a more optimistic scenario, to grow more slowly than in the past.

The concentration of employment in the manufacture of household appliances, textiles, and apparel and in construction means that Tennessee faces a real challenge if it is to make a transition from a manufacturing- to a service-based economy. This process is likely to result in high levels of structural unemployment unless action is taken now to train and retrain workers for the jobs of the future. ■

TABLE 11

1977 FULL-TIME EQUIVALENT STATE AND LOCAL GOVERNMENT EMPLOYMENT

Full-time Equivalent Employment	Tennessee Per 10,000 Population Total	United States Per 10,000 Population Total
All Functions	512.0	489.5
Education Services:		
Higher Education	45.9	50.7
Instructional Employees only	15.0	19.7
Local Schools	175.2	182.6
Instructional Employees only	119.9	128.0
Libraries	2.3	3.0
Other Education	6.9	4.0
Social Services and Income Maintenance:		
Public Welfare	15.0	8.8
Hospitals	64.3	48.1
Health	10.7	9.2
Social Insurance Administration	4.8	5.0
Transportation:		
Highways	30.8	25.3
Air Transportation	1.0	0.8
Water Transportation	n.a.	0.6
Public Safety:		
Police Protection	22.6	26.2
Police Officers only	n.a.	n.a.
Fire Protection	12.2	9.9
Firefighters only	11.5	9.4
Correction	9.9	10.0
Environment and Housing:		
Natural Resources	10.1	8.3
Local Parks and Recreation	7.1	7.3
Housing and Urban Renewal	6.7	3.9
Sewerage	4.1	3.8
Sanitation other than Sewerage	9.5	5.7
Governmental Administration:		
Financial Administration	11.2	12.5
General Control	11.5	16.7
Local Utilities:	24.4	14.3
Water Supply	6.7	5.3
Electric Supply	13.0	2.8
Gas Supply	3.7	0.5
Transit	1.1	5.8
Other and Unallocable	25.6	25.1

n.a. not available

Source: *1977 Census of Governments.*

Editor's Note: Data for this article come from a variety of sources: nonagricultural employment as reported in the 1977 economic censuses; data on agriculture from the **1978 Census of Agriculture**; *data on government employment from the* **1977 Census of Governments**; *and data on services is from* **1977 County Business Patterns.**

TENNESSEE STATISTICAL ABSTRACT

AVAILABLE AUGUST 1983

The 1983/84 edition of the **Tennessee Statistical Abstract**, an economical and efficient reference to information in 19 subject areas for the state as a whole for Tennessee's Standard Metropolitan Statistical Areas, for each of the 95 counties, and for cities and towns, will be available in August 1983 from the Center for Business and Economic Research, College of Business Administration, The University of Tennessee, Knoxville.

Data users are finding that it is becoming increasingly difficult to obtain current data. Some agencies still collect data but can no longer make it publicly available. In addition, many government agencies no longer include statistical data in their annual reports and release data only after an individual request, sometimes for a fee. The **Tennessee Statistical Abstract** for 1983/84 eliminates much of the time and expenditure involved in researching various outlets of information.

The following areas are covered, each with tables presenting comparisons of Tennessee with other Southeastern states.

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